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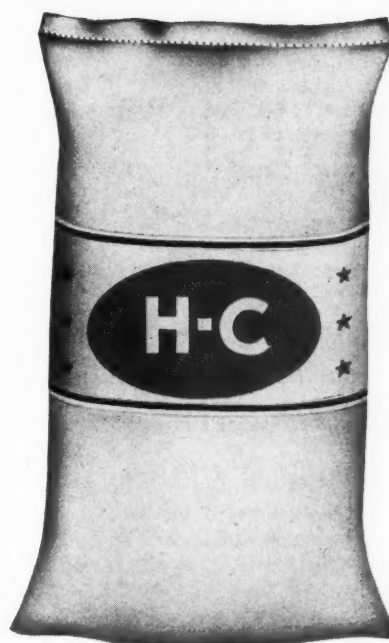
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FEBRUARY, 1951

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FEBRUARY, 1951

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## Cover

United States Potash Company, 22 miles northeast of Carlsbad, N. M. The main structures visible are the headframe over Shaft No. 1, and the five load-out bins on the milling and tabling building. In the background is the tailings storage dump.

—Photo courtesy American Plant Food Council

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# Trends & Forecasts

Agricultural Consultants  
Fred Bailey and Don Lerch  
Report from Washington

The sulphur bottleneck is believed by informed sources to be here for duration of the defense emergency. Since sulphur is essential for so many industrial processes, the shortage is becoming one of the major defense problems.

NPA, back in January, began drafting an order for allocation of sulphur to replace the informal channeling of supplies to meet pressing defense production needs.

Sulphur allocation won't solve problem according to officials but appears to have these advantages. First, it will make the public more aware of the seriousness of the supply situation. Second, it is aimed at bringing some semblance of orderly distribution of available supplies. Shortage of sulphur will be much more serious than was first realized by some government and industry officials. There appears to be little hope of substantial improvement this year—perhaps not for several years.

Ten-to-fifteen-year known remaining U. S. supply is the estimate often referred to in Washington discussions. Explorations to develop other sources will be pushed.

Pyrites is looked upon as the principal known remaining source with many businessmen eager to contract with Spain for supplies. Further clarification of diplomatic relations with Spain appear necessary before this source can be effectively tapped.

Special fertilizer subcommittee headed by Representative Tom Abernathy (D. Miss.), is expected to explore availability of fertilizers. Agricultural groups have found that such exploratory sessions have been helpful in the past.

Cedric G. Gran of the Mathieson Chemical Corporation formerly in OPA in charge of fertilizer prices has been appointed consultant in the fertilizer division and is in charge of price stabilization for fertilizers, insecticides, and fungicides of the OPS. In this field, however, there remains a great deal to be settled before there is a working organization.

Fertilizer industry officials are faced with delicate prospect of telling farmers, "We can take care of nearly all your needs 'till July—after that we don't know."

Many pesticide industry officials say about the same except that they inject suggestions for alternate materials and extend the time period another month or so.

Responsible officials give the pesticide industry a pat on the back for being far-sighted in planning this year's production program. Allocations would thus

tend to reduce supplies of some of industries' raw materials. No allocations in strict proportion to manufacturing and insecticidal efficiency contemplated by officials at present.

Need for accurate industry statistics abundantly evident at every turn in Washington corridors. NPA offices in particular are jammed with desks crowded into every available corner. Businessmen keep the waiting benches well warmed with the overflow lining the hallways. Officials are hard pressed to keep track of daily changes within their own divisions, answer a steady succession of phone calls, and at the same time give intelligent answers to questions from businessmen. Against the din, it's difficult for both visitors and officials to conduct business.

Shortages of metal containers appear likely to result in an NPA order, and again point up the need for industry statistics.

Chlorine tank cars are receiving some Washington attention. Some unofficial "assists" are being given to help meet emergency conditions, but in general it's looked on as just another problem.

Current benzene shortage will continue. Officials hope the situation will be relieved by mid '52. This hope assumes that recommended production increases materialize and that the level of defense production does not exceed present expectations. Increased benzene supplies at that time probably would not be much of a factor for protecting '52 crops, indicating a possible bid for heavier supplies at an earlier time.

Official recommendations against the allocation of benzene and chlorine until July at the earliest have been made by USDA.

NPA limitation of D0 orders for DDT producers is considered by officials as a pattern for future government purchases—that is, a real effort will be made to spread defense load equitably. Some DDT manufacturers had accepted D0 orders without question, later finding they had few companions. Present limitation of DDT D0 orders to 25 per cent of scheduled monthly production was largely industry's answer.

DDT action shows need for close Washington relations and more industry-wide activity.

Some tapping of industry talent to fill key defense jobs may be necessary or they will go by default. Fame of Washington confusion as deterring factor generally understood—but if industry doesn't accept invitations—somebody else will.

Continuation of the Delaney investigation, authorized by the House, poses challenge to USDA to fully discuss the Federal Insecticide Act referred to in previous investigation as a farm law containing a joker. BEPQ is particularly anxious to be heard.

USDA and farm organizations are expected to carry much of the burden of testimony when hearings begin.

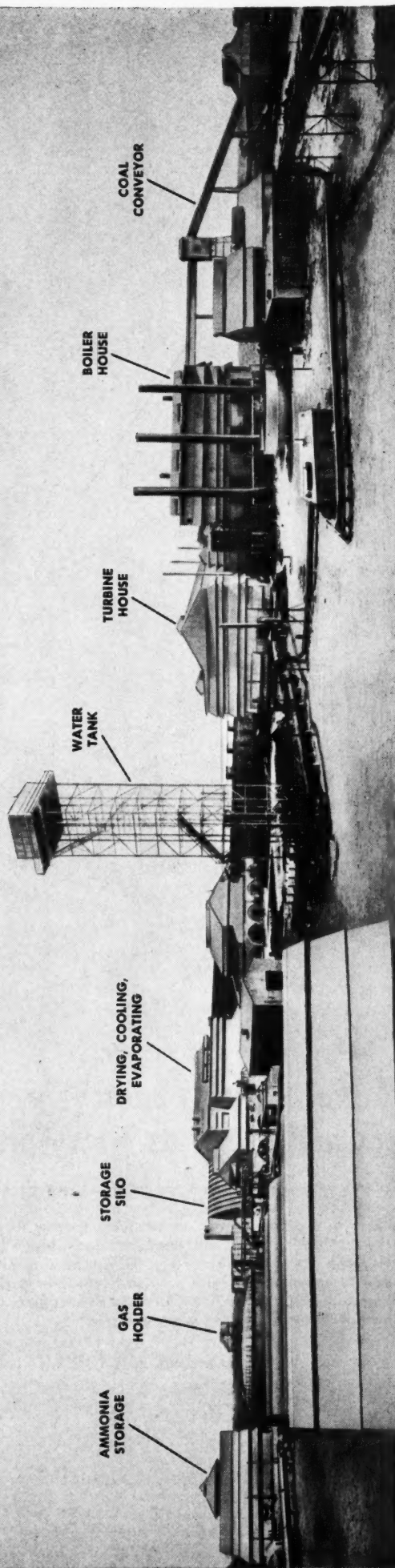
Replacement for Representative Keefe, former Committee member, is a crucial appointment. Keefe was a mainspring behind the original inquiry.

Investigation also major industry job generally believed to require increased attention and work.



# Fertilizer for India

ANOTHER IMPORTANT CHEMICO PROJECT WELL UNDER WAY



Helping modern India to meet its vast requirements for fertilizer is another one of Chemico's world-wide activities. This large ammonium sulfate plant, located at Sindri, in Bihar province, will soon be in partial operation. The project, when completed, will

produce 350,000 long tons of nitrogenous fertilizer per year... with a daily capacity of 1000 tons. • The plant will utilize such raw materials as coal, coke and gypsum which are wholly indigenous to India. It will include a completely independent power and

water supply of record proportions. • The Sindri works was designed and is being supervised by Chemical Construction Corporation, New York and is being erected by Power-Gas Corporation Ltd., England, for the Ministry of Industry and Supply, Government of India.

## CHEMICAL CONSTRUCTION CORPORATION

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**RAYMOND** MULTI-WALL PAPER SHIPPING SACKS

# Experts plus Experience . . .

## Will they mean more adequate farm chemicals?

For the third time within a third of a century, the industry is faced with an international crisis which affects every manufacturer. What have we learned from our experiences of World Wars I and II?

When the German armies overran Belgium and northern France in 1914, the fertilizer industry was dependent on foreign sources for a large part of its essential materials. About a third of its sulphate of ammonia, all of its nitrate of soda and all of its potash salts came from abroad. As a result, fertilizer production dropped from 7½-million tons in 1914 to 5½-million tons in 1916, and even the stimulus of wartime food demands was able to raise the output to only about 7-million tons in 1918.

An organization of fertilizer and chemical companies known as the Chemical Alliance, Inc., working with government officials, was able to keep essential materials, particularly sulphuric acid, flowing to the various sections of the country but at best it was an emergency hit-or-miss proposition. Little effort was made for price stabilization with the result that sulphate of ammonia rose from \$54.00 a ton in 1914 to \$98.00 a ton in 1918 and muriate of potash rocketed from a pre-war level of \$39.00 a ton to a top of \$400.00 a ton in 1918. Even superphosphate, which was produced entirely within the industry, advanced from \$12.00 a ton in 1916 to \$18.00 in 1918.

With the start of World War II the picture had changed. No longer was the agricultural chemical industry forced to rely on foreign sources of supply. Chemical nitrogen in every form was being produced domestically in adequate quantities, while the phenomenal growth of the American potash industry had made us independent of Europe for this vital material. It is not surprising, therefore, that fertilizer production was able to increase from 7½-million tons in 1938 to 13-million tons in 1945.

Another important factor was the recognition by governmental authorities that fertilizers and insecticides were as vital to the war effort as munitions and other military supplies. Industry committees, working with the United States production and price-control agencies, did outstanding work in providing the farmer with an adequate supply of fertilizers and insecticides at surprisingly low prices. In fact, throughout the past ten years, these materials have remained consistently at the bottom of the price-index list for farm purchases as showing the smallest increase over pre-war levels.

The current crisis, however, presents several points of difference from those of 1917 and 1941. This time we were able to recognize the emergency while it was still in the "cold war" stage and to make preparations before the localized hostilities in Korea spread over

the rest of the world. It is true that much more might have been accomplished if current provisions for production and price-control had been started months ago, but at least we can be assured that another Pearl Harbor will not find us as unprepared as we were in 1941.

Again, there are available many capable men in both the industry and government whose experience and training during World War II will enable them to avoid the difficulties which were formerly solved only by an expensive and time-consuming trial-and-error method.

An example is the recent appointment of Cedric B. Gran by the Office of Price Stabilization to head the division of fertilizers, insecticides and fungicides. Mr. Gran, in addition to many years spent in executive capacity with prominent fertilizer companies and with the American Plant Food Council, gave valuable service with OPA during World War II.

Moreover, it is pretty generally realized that this is not a temporary situation which will last only a few months or years. The forces of Communism and those of the free world are so vast that, even if actual armed conflict can be avoided, we must be prepared to meet any emergency which may arise, whether it be in 1951 or during the next decade.

At the present time, the immediate outlook is favorable. Supplies of fertilizer materials seem to be sufficient to meet the expected demands for the coming season. In the pesticide field, there is a shortage of some materials, but steps are being taken to provide substitutes so that the farmer can have adequate protection for his 1951 crops.

The shortage of sulphuric acid is one of the problems which must be solved promptly. As Russell Coleman, president of the National Fertilizer Association, recently stated, "Removal of acreage allotments can mean little to crop production unless the fertilizer industry, so closely allied with agriculture, is accorded treatment with regard to supplies of sulphuric acid similar to that given other key industries such as steel, rubber and petroleum."

"Even though fertilizer demand this year may be 20 per cent greater than last year, we can come close to producing all of the nitrogen and potash required. But such increased production will not be completely effective unless supplies of sulphuric acid are made available for the manufacture of superphosphate which in turn is a key component of most fertilizers."

The National Production Authority has appointed as Chief of the Inorganic Chemical Section, Frederic Arden, of the Mathieson Chemical Corporation, who will concentrate on supply and distribution of both sulphur and sulphuric acid.

—A. A. Ware



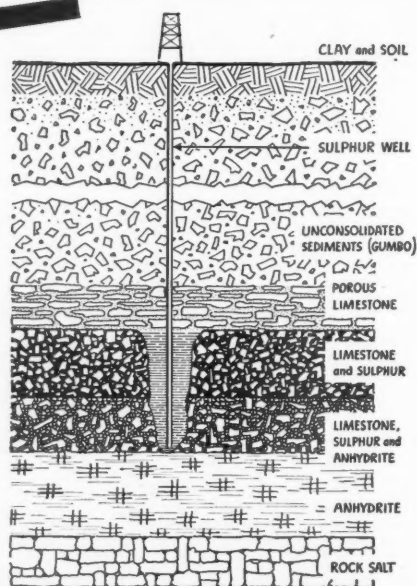
# SULPHUR

**\*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region**

## \*DEPOSITS...

Practically all of the elemental sulphur used in this country comes from mines in Louisiana and Texas.

There, the sulphur deposits occur in the cap rock overlying certain salt domes. The sulphur is mined at depths of 300 to 2,000 feet below the surface. It is melted in place by pumping into the deposit water heated under pressure to a temperature above the melting point of sulphur. The melted sulphur flows away from the limestone and is pumped to the surface where it is allowed to solidify in vats. By such means sulphur nearly 100% pure is produced



Loading operations at our  
Newgulf, Texas' mine



**TEXAS GULF SULPHUR CO. INC.**  
75 East 45th St. New York 17, N. Y.  
Mines: Newgulf and Moss Bluff, Texas



# Survey

---

Here for the first time are authenticated figures which measure the attitudes and interest of the fertilizer industry with regard to expansion into the field of pest-control chemicals. Inquiries were mailed to every member of the fertilizer industry in the United States, Canada, Cuba, and the territories of Hawaii, Alaska, and Puerto Rico. The figures, recorded as percentages for your convenience, are based only on the answers received. No attempt has been made to project the answers to include those who did not reply to the questionnaire. Every effort has been made to avoid unwarranted assumptions. There are no wild guesses here, no pet theories. Here are the facts as we found them.

---

**shows nearly three-fourths of fertilizer industry in survey is either already in, or is considering the pesticide business**

**D**URING the past few years a lot of guesses have been made as to how interested the fertilizer industry is in insecticides (or, by the more general word, "pesticides," coined to include insecticides, herbicides, fungicides, weedicides, and rodenticides all in one term.) In the type of cursory check possible during ordinary business contacts, one could get a wide variety of conflicting answers and opinions difficult to fit into any pattern without more reliable measurements.

One manufacturer or supplier might say "the large fertilizer concerns are selling or formulating insecticides, but the smaller outfits are not interested." Taking an opposite view the very next fertilizer manufacturer you asked might say, "Small concerns are tremendously interested, but not the larger ones."

A plant operator in Florida narrowed his answer right down to cases by saying that all the fertilizer manufacturers in his state were in the insecticide business, but that in Louisiana the reverse was true. He was wrong on both counts.

Approximately 36 per cent of the fertilizer manufacturers in Florida are not in the insecticide business. On the other hand two out of five Louisiana manufacturers said they do sell insecticides.

AMERICAN FERTILIZER & ALLIED CHEMICALS was certain that the fertilizer industry was more than mildly interested in the manufacture and distribution of pest-control chemicals. An effort was made to supply a realistic answer to the question, "Are fertilizer manufacturers interested in expanding their operations to include pesticides, either by formulating them, selling them, or both?"

## ***How Survey Was Made***

A spot check of fertilizer plants in different sections of the country might have been acceptable from a statistical point of view. The size of the industry, however, is such that a complete survey was economical and was more likely to settle the question in the minds of those of us who have neither the time nor the inclination to interpret rigorous statistical findings.

## Industry-wide Survey

Shows

72.6%

of

Fertilizer  
Industry

For that reason a questionnaire was sent to every fertilizer plant in the continental United States, to the territories of Hawaii, Alaska and Puerto Rico, and to Cuba and Canada.

The results were as gratifying as they were informative. For one thing there was a 48.3 per cent response. Professional survey men tell us that anything above a 10 per cent reply is high for a mailed inquiry of the type sent. They further told us we would be safe in "projecting" our findings. That is, we could assume that the attitudes of the 48.3 per cent of the industry which responded to our questions were representative of the attitudes of the entire industry.

However, the results that follow are based on the actual inquiries returned. No attempt has been made to "project" the findings to include those who, for one reason or another, did not answer the questionnaire. It was felt that people who do not by oversight or other reason, habitually fail to respond to mailed inquiries do not have any chance at all of being included in a "sample" of the group of which they are a part. Good sampling requires that every member of the group have an equal chance of appearing in the sample before it can be "projected" to cover the entire group. So the tabulations and charts that are a major part of this report are merely that, a report of what people told us when we "interviewed" them by mail.

### Over-all Results

The survey shows that fertilizer manufacturers are extremely interested in the manufacture and sale of pesticides. Of those who responded, 55.8 per cent now sell pest-control chemicals; 16.8 per cent of those not now selling pesticides are considering it. In other words, nearly three-fourths of the fertilizer companies who answered our questions are in the pesticide business already or are considering it.

In response to the questionnaire, one company said that in their section of the country it is a virtual necessity that fertilizer manufacturers also deal in pesticides. This company reported that banks in their area will not make a loan to a farmer unless he gives assurance that he will protect his crop to ma-

turity by proper use of effective pesticides. The company felt that for such reasons it is a wise policy for them to fill their total farm-chemicals needs of their customers.

### Region and Plant Size

Because of wide regional variations in conditions that regulate the fertilizer-pesticide business, the survey results have been analyzed to show how the industry responded according to regions. Highest interest in pesticides was expressed by fertilizer manufacturers in the South Atlantic states, 86.2 per cent of whom sell or intend to sell pest-control chemicals.

To settle the question as to the difference in interest between large and small companies, the responses were analyzed according to size of plant. For convenience, plants were grouped into three classes; small, medium, and large. Small plants are those with an annual capacity of less than 10,000 tons. Medium plants produce between 10,000 and 50,000 tons a year, and large plants are those which have a yearly capacity of over 50,000 tons. These classifications are strictly arbitrary and were made for the purposes of this survey only.

Now to the question, "What, if anything, does size of plant have to do with interest in pesticides?" Among small plants, 80 per cent of the producers are in or considering the pesticide business. Sixty-one per cent of the medium sized producers reported activity or interest in pesticide business, as did 46 per cent of the large producers. There is good reason to believe that these percentages are significant, that is, activity or interest in pesticides among fertilizer manufacturers seems to depend on size, with the smaller operators more interested than the larger ones.

The survey definitely shows that a sizeable majority of fertilizer manufacturers in the United States and its territories and in Canada are already in or are going in the pesticide business.

More than one fertilizer manufacturer entered the pesticide field because, as one of them put it, "It goes hand in hand with the fertilizer business, and helps keep me busy during slack seasons."

48% Response

now



sells

and/or



mixes

or is



considering

Pest-control chemicals as a part of their business

(Please turn page)

## Survey results as a whole:

1. 48.3% of entire industry responded to our mailed inquiry. A 10% response is considered high.
2. 72.6%—nearly three-fourths—of these either sell pesticides now or are considering it.  
55.8% of those who answered, say they now sell pesticides of some kind.  
16.8% of those who don't sell pesticides yet, say they are considering it.
3. 24.9% who sell pest-control chemicals formulate some or all of those they sell.

## Results by regions:

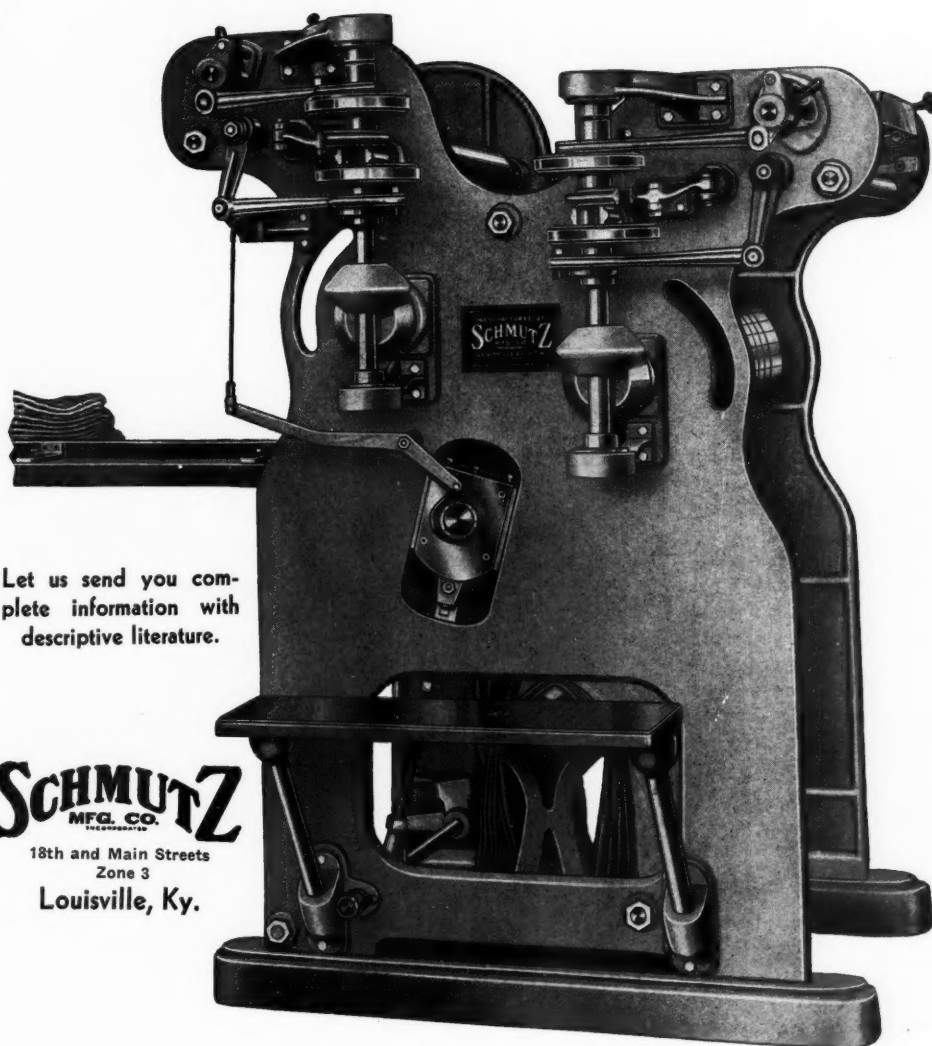
Percentage who	Regions of the Country										Total %
	New England	Middle Atlantic	South Atlantic	East No. Central	East So. Central	West No. Central	West So. Central	Mountain	Pacific	Other	
<b>Sell Pesticides</b>	30%	66.6%	64.8%	34.7%	51.3%	45.5%	50%	71.4%	64.6%	40%	39.9
<b>Consider Selling Pesticides</b>	0%	36.7%	14%	5.8%	16.6%	0%	40%	0%	27.3%	0%	16.8
<b>Manufacture Pesticides</b>	33.3%	68.2%	16.8%	66.6%	10.5%	60%	40%	60%	60%	100%	24.9
<b>Consider Making Pesticides</b>	0%	12.6%	11.8%	33.3%	21%	0%	10%	0%	15%	0%	11.7

For interpretation of percentages in table above, please see accompanying text.



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# Pasture-Livestock Program

## Boosts Use of F

Warren C. Huff

**M**ISSOURI agriculturists, including extension service workers, vocational agriculture teachers, PMA officials, and soil-conservation personnel as well as representatives of the livestock and related organizations, have launched a Pasture-Livestock Improvement program. Extensive use of fertilizers—in spite of impending shortages of commercial plant food—are an important part of the program. Fear of such shortages is one of the reasons agricultural leaders promoting the program are calling for better farm management, closer cooperation between farmers and fertilizer producers, greater use of agricultural limestone, and increased on-the-farm production of nitrogen.

The Pasture-Livestock program was officially launched last month with three regional meetings at St. Louis, Springfield, and Kansas City, attended by about 300 representatives of the fertilizer and other interested industries. Approximately 20 local follow-up meetings were to be held during January and February.

Professor J. H. Longwell, Dean and Director, University of Missouri College of Agriculture, key-noted the regional meetings, saying in part, "We use the term 'Pasture-Livestock' because both phases are essential to a successful grasslands program.

"We agree with the proponents of a cereal economy when they say that cereals will feed more people, but this theory does not recognize that this country has large areas adapted only to livestock. We also have large areas of rough broken land that should be returned to sod

crops, we have by-products of grain farming that can best be used by livestock, and while cereal advocates are talking about energy foods we must not forget that we also need large quantities of high-quality proteins. Only livestock produce proteins that meet human needs in quantity and quality. Animal sources of food also contain vitamins, calcium and other essential minerals."

In support of these statements, Longwell pointed out that "Missouri has twelve million acres primarily adapted for pasture, plus an additional six million acres of open woodland used for pastures. We must look upon pasture as a crop deserving of the attention given to cultivated crops."

### Grass As A "Crop"

Dr. W. M. Myers, Pasture Specialist, USDA, said, "Agriculture in the United States is undergoing changes today greater than any since the settlement of this country nearly two centuries ago. In the past, we have been cash- and row-crop farmers. We have emphasized corn, the cereal grains, cotton, and tobacco. We have cleared the forests, plowed the prairies of the mid-west, turned the bunch-grasses of the Palouse—all of this to produce more grain, more fiber, and more of other cash crops. In so doing we have built the greatest nation on earth.

"There once was land enough for all—there was an enormous storehouse of productivity in the soil, built and held there for uncounted centuries by continuous grass cover. There once was plenty of feed for our grazing herds on the rough, poor land unsuited for production of cash crops. Besides, everyone

knew that it was the grain we fed that produced the milk and the beef—pastures and hay crops were thought of as 'roughage.' They were indeed poor crops, in fact, not crops at all. Certainly they did not deserve nor did they get a place on productive cropland. Neither did they warrant nor receive fertilization or other care.

"But all of this is changing—we are now witnessing a conversion of our agriculture from a cash- and row-crop system to a grasslands system. It is a great movement—almost a crusade. It is a movement that has been progressing gradually throughout the United States, more rapidly in some areas than in others, but nevertheless moving forward in all parts of the country.

"Not only must we carry on with our grasslands program in our present national emergency—we must drive forward toward a grassland agriculture with increased vigor. I should like to outline, if I may, some of the reasons I am convinced this is correct:

"First, our nation's grasslands have an enormous potential of productivity if properly treated. There are almost a billion acres of permanent grasslands in the United States and most of them are unimproved. Liming, fertilization, re-seeding to productive grasses and legumes, and management practices that assure optimum production and utilization would result in double and treble the present production from hundreds of millions of acres of permanent grasslands. For example, pasture renovation in the Northeast has resulted in increases in herbage production of 4 to 6 times over the unimproved pastures. In Georgia, a well-fertilized Coastal Bermuda

# of Fertilizers

grass pasture produced in a single season 569 pounds of beef plus 2500 pounds of high quality hay per acre. At Beaumont, Texas, proper fertilization and seeding of adapted grasses and legumes in rice stubble pastures increased beef production 300 per cent. Similar improvement could be cited from work in Missouri.

## **Cheaper Feed Units**

"Secondly, it has been shown experimentally that on much of the cropland of the United States, improved grasslands can produce as many feed units per acre, at lower cost per feed unit, and with greater returns per man hour of labor than can corn or the other feed grains.

"Third, improved grasslands can produce, as pasture, hay and silage, most or all of the feed required for livestock. Dairy cows can produce 80 per cent as much milk on improved pasture alone as on the best combinations of concentrated feeds. Dairy cows have produced 8000 pounds of milk per year without any concentrates.

"Fourth, large portions of our population are milk and meat hungry. It has been estimated by the Chief of the Bureau of Human Nutrition and Home Economics that 40 per cent of our families have diets deficient in calcium and 50 per cent have diets deficient in protein. The best way to ensure sufficient minerals and protein in the human diet is through animal products, milk, meat, eggs, and so forth. But if our experience of World War II is repeated, these dietary deficiencies will be accentuated for it was meat, butter, fats, and other livestock products that became critically short. If we are

to avoid recurrence of those shortages and dietary deficiencies that will handicap us in a long struggle, we must have more livestock products at prices that place them within reach of the greatest majority of our people. By a grasslands program we can have increased supplies of livestock products, produced at lower cost, without interfering with production of other food and fiber crops and without competing for short supplies of feed grains. But without a grasslands program we must content ourselves with less total food abundance and with diets made up of lower amounts of meat, milk, butter and cheese.

"Fifth, wool is already a critically short commodity. Sheep can, and at present do, exceed all other classes of livestock in the proportion of nutrients they obtain from forage. Improved grasslands are required to feed the sheep that will produce the wool so seriously needed.

"Last, improved grasslands are required in crop rotation to provide sustained maximum production of other cultivated crops. No cropping schemes have yet been devised for American agriculture that will maintain soil organic matter except those based on adequate proportions of grasses and legumes in rotation. The so-called cultivated crops are soil-depleting crops. The process of annual plowing and periodic tillage is in itself a soil-destroying process. As soil fertility and organic matter decline, soil structure is lost, moisture relations deteriorate, tillage difficulties increase, crop yields decline, and erosion hazards increase."

In conclusion, Myers said, "To me, grassland farming is a system based on adequate and intelligent

use of grasses and legumes, a system in which the grasslands are an integral part of the cropping scheme, a system in which some areas, unsuited for cultivation, are converted to permanent grasslands, a system in which other areas are placed in crop rotations with a sufficient proportion of grasslands to protect the soil and give profitable and sustained production of the cultivated crops. In fact, in grassland farming, pasture, hay, and grass silage are cultivated crops, receiving and warranting as much care as is lavished on what are now commonly classified as such."

True D. Morse, president, Doane Agricultural Service, Inc., praised the Missouri agriculturists for their far-sighted efforts to make pasture-livestock farming a reality. However, he pointed out that government control of materials and prices places limitations on the program that should be recognized. Morse highlighted his remarks with the following observations:

Fertilizer shortages will be a major problem. There is not enough fertilizer now being produced to adequately take care of present farm needs. The pasture-livestock program calls for vastly increased use of fertilizers at the very time when companies are faced with fertilizer material shortages.

## **Cooperation Needed**

Prominent among the economic and farm management problems which must be met will be the decisions as to which crops and pastures the available fertilizers should be applied. After needs are met for the most critical crops, there may be only limited amounts and only certain fertilizers that can be used on pastures.

Farmers must work with fertilizer producers to enable the maximum output of fertilizers from their existing facilities. Purchases should be made well ahead of planting dated for crops, and stocks of fertilizers should be built up on farms during the seasons fertilizer plants can make deliveries.

Full use should be made of fertilizers that are available. Limestone, for example, may continue in adequate supply—and any such

materials should be used to the limit until other plant foods can be had.

### **More Nitrogen on Farm**

More nitrogen will have to be produced on the farms as this element is pulled away for war and defense use. Production of agricultural products should not be allowed to bog down merely because nitrogen cannot be purchased in fertilizer bags.

"Capable farms and farm managers," Morse thinks, "will swing into action to make nitrogen factories out of their farms. It is profitable in either war or peace; during a national emergency it becomes patriotic as well.

Pasture improvements by means other than fertilizer should be pushed. Clearing of brush and timber, water control, mowing weeds and seeding are examples of what can be done. On thousands of Missouri farms this requires a minimum of cash—merely more use of family labor. To meet the national emergency Morse believes all will want to work more hours and to use slack seasons on farms to increase their productivity.

A serious feed shortage looms. It is the most important fact in the livestock and meat outlook for 1951. With a near record feed-crop in 1950 we will be using up accumulated feed stocks by next summer. This is the fourth successive year of increasing livestock and poultry production. Already grain prices have gone so high that Missouri farmers are considering a cut-back in hog production. A short corn crop in 1951 would be tragic—hog, poultry and dairy production would be rapidly reduced.

Pasture and range conditions have been better than average during the past 10 years due to favorable weather. Even an average pasture year with present expanding livestock numbers would greatly curtail meat production. With improved pastures a high level of meat and dairy production can be maintained with reduced grain supplies, if that becomes necessary. Full use will need to be made of pastures and forage crops if farmers are to maintain and increase their herds and flocks

and consumers are to continue to get liberal meat diets.

The threat of a serious feed shortage at a time when the nation needs more, rather than less, meat is receiving too little attention. The better crop soils should continue to be devoted to grain and feed production. The emphasis on pasture and livestock farming may mislead a few farm owners into going too far in the direction of grasslands production. Hogs should be produced in larger numbers on pastures. They have long been one of the major sources of cash farm income in the state of Missouri.

"Too many farmers," said Morse, "do not realize the profits to be gained from hogs on grasslands farms. We now have several years' records on a livestock farm we manage in central Missouri. Out of 1000 acres, the corn average is only about 10 to 25 acres per year. Yet on that farm the hog unit is consistently the most profitable of the farm enterprises.

"You need not grow corn to make profits with hogs. If you have lush pastures planned for all year—and are effective with hogs—they will pay year after year.

### **Intensive Farming**

"Most Missouri farms have too small a business," thinks Morse. "As a result, profits are small and the standard of living averages low. The Federal Reserve Bank of St. Louis says this, '... an economically undeveloped area. As a result, it is a region of low income and below the national average in living standard.' Among the reasons the bank gives for this, it lists first 'the failure to fully utilize the natural resources at hand.'

"Pasture farming tends to be 'extensive' rather than 'intensive,' and, as such tends to require large acreages to properly support a farm family. Dairy cattle, hogs, and poultry are intensive enterprises that make possible a large business volume on smaller farms. If large numbers of people are to continue to be employed on Missouri farms, care must be taken to see that these intensive livestock enterprises receive primary attention in the Pasture and Livestock program. If this is not done there

will be too many large, ranch-type properties, with few people employed and costing too much for most young farmers to ever hope to acquire."

The cities, claims Morse, have a tremendous stake in the Pasture and Livestock Program. The St. Louis Chamber of Commerce says, "Sixty-four per cent of all jobs in St. Louis are possible because of agriculture."

Morse concluded by saying, "The economics of Pasture-Livestock farming affect the business profits and diets of all our people. Let us not take a narrow or short-term view of the program that is being launched here. The national emergency is likely to be of long duration. The meats which consumers want and which are necessary for our military strength are at stake."

C. B. Denman of the National Food Chains said, "We must choose the road ahead with great care because we are going to be on it for a long time." Denman emphasized that everything possible should be done to avoid black markets in livestock products during this emergency because anything that disturbs orderly and sensible marketing of livestock products will also hamper the program of pasture and grassland improvement.

John F. Crey, former president of the American Meat Institute, said that we are facing a critical feed shortage. He said, "We have no more land; we have to do better with what we have. We must properly analyze our pasture and grass needs and then fertilize according to these needs."

### **Albrecht Speaks**

Dr. William A. Albrecht, chairman of the Department of Soils, College of Agriculture, University of Missouri, said, "From the standpoint of improved human nutrition there is a very good reason for increased emphasis on a Pasture-Livestock program because the cow, for example, can do a better job of making proteins if man gets out of the way."

"True," said Albrecht, "well-fertilized grasses and legumes contain the rather simple proteins, but the cow is capable of taking these and assembling (Continued on page 38)





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Field trials with Fordhook lima beans show need for fungicide-herbicide combination. (1) no treatment, (2) Arasan, (4) Dieldrin-Arasan, (5) Dieldrin, (9) Lindane alone, (next row, right) Lindane plus Arasan.

New method combines

# Fungicide - Herbicide

for seed-corn maggot control

Wayne L. Howe and W. T. Schroeder

*Agricultural Experiment Station, Geneva, N. Y.*

**F**AILURE of beans and some other crops to produce adequate stands in western New York is the result of two distinct factors. One is the action of soil-inhabiting bacteria and fungi which cause seed decay. The other is invasion of the germinating seed by the seed-corn maggot. The maggot and rot organisms acting together constitute a formidable seed-destroying combination, too frequently interfering with the desired planting schedule of the crops affected. A seed treatment is now available which combines a fungicide with an insecticide and assures much more satisfactory stands of beans and other affected crops.

The seed-rotting organisms attack the seed pieces of the germinating seed, resulting in a weakened seedling or outright death of the plant. Satisfactory prevention of injury from these organisms can be accomplished through the use of fungicides applied to the seedcoat. These fungicides, however, will not control the seed-corn maggot.

The maggot attacks essentially the same parts of

the germinating seed as the seed-rotting organisms, but the effects are somewhat different. The small legless larvae can destroy the capacity of the seed to come up by consuming large portions of the cotyledons or seed pieces. In the course of invading these tissues the maggot may sever or destroy the plumule which lies between the two seed pieces. As a result, the plant may emerge without a growing point, resulting in so-called "baldhead" or "snakehead" plants. Such plants either eventually die or are unproductive. Less severe attack may result in the deformation of the true leaves of the newly emerged seedling, thereby retarding later growth and decreasing yields.

Soil type, temperature, and rainfall may also affect the stands of beans and other crops. Wet soils favor the activity and development of both the rot organism and maggot. This factor, as well as heavy soil type and low soil temperatures may have an adverse effect in that they prolong the period between planting and emergencies. This situation not only weakens the seed but increases the period of susceptibility to rot and maggot. Beans, especially lima beans, are highly sensitive to these adverse conditions.

The only practical means available heretofore for combating the seed-corn maggot was to plant the

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seed when the maggot population in the soil was at a low level. The object is to delay planting until after the first brood of maggots matures and before the second appears. This period is about 4 days' duration, usually beginning between June 7 and 14 in western New York. By delaying planting until early or mid-June, there is also the advantage of warmer soil which favors rapid germination and emergence of the seed. This reduces the period of exposure both to maggot and rots.

The restricted planting period constitutes the chief disadvantage of the practice. It not only requires late planting, but also the period indicated for sowing is so short that it may not coincide with suitable soil and weather conditions. Growers are keenly interested in having a more effective and flexible control program. Extension of the planting period would permit a longer growing season and more efficient use of labor in the field and in processing plants. Also earlier plantings of longer season crops such as lima beans would not only insure maturity before frost but would enable processors to time maturity to coincide with that of corn for such products as succotash.

For the market grower, production for the more valuable early markets would be more certain. Furthermore, a longer planting span offers more opportunities to plant when seedbeds are in ideal condition.

### **More Effective Control**

Experiments carried out at the Experiment Station at Geneva, N. Y., during the past 4 years have resulted in the development of an effective seed treatment program for control of both seed-corn maggot and seed-decay organisms. For the most part, lima beans were chosen as the test crop. Germinating seeds of this crop are highly susceptible to both maggot and decay injury. Therefore, seed treatments effective on lima beans are likely to prove suitable for use on the more tolerant seed of other crops.

Of insecticides tested, chlordane, lindane, dieldrin, and aldrin gave the best control of the seed-corn maggot. This information was gained from a critical examination of the germinating seedlings grown in artificially infested soil in the greenhouse and naturally infested soil in the field.

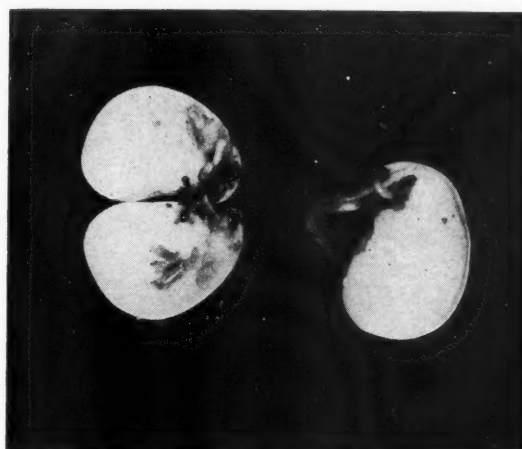
Early in the studies it became apparent that, although the insecticides gave good control of the maggot, they had little or no value in controlling seed rots. In fact, under some conditions in the field, the insecticides when used alone appeared to predispose the seeds to decay.

The necessity of including a fungicide with the insecticide for best performance over a wide range of planting conditions became clearly apparent. Of several fungicides tested Arasan was found to be most effective in preventing seed decay and in counteracting the toxic effects of the seeds exhibited by the insecticides.

In applying a mixture of a fungicide and an insecticide to smooth-surfaced seeds such as lima beans and other beans, it became apparent that a sticker was



**These pictures show effectiveness of fungicide-herbicide treatment against a serious infestation of seed-corn maggot. Above: no treatment.**



**Arasan fungicide used alone has stopped nearly all of the decay evident in the top picture, but there is still considerable injury from maggots.**



**Arasan-Dieldrin, combination fungicide-herbicide treatment, shows effective treatment of both infestations that caused injury to the seedlings.**

*Text and photos courtesy "Farm Research," Geneva, N. Y.*



Types and severity of injury caused by seed-corn maggot. Plant at far left is healthy.

needed to make the materials adhere. A 4 per cent menthyl cellulose solution (Methocel) is a satisfactory adhesive. By suspending the insecticide and fungicide materials in this solution it is possible not only to stick them on but to distribute them evenly over the surface of the seed. The use of the methocel slurry method also eliminates the irritating effects of the pesticides on the user when they are handled in a dry state.

The use of the fungicide-insecticide combination as seed treatment for lima beans has given uniformly effective control of seed decay and seed-corn maggot injury over a wide range of planting conditions. This will enable the grower and processor to extend the planting season to cover about 3 weeks rather than the 4 to 6 days of maggot-free planting time.

#### Directions For Use

Application of the materials to the seed is comparatively easy and does not require special equipment.

Three choices of materials, together with the amounts required to treat 1 bushel of seed, are given in Table 1.

To prepare a 4 per cent Methocel solution add 1/3 pound (5 1/3 ounces) Methocel to 1 quart of water heated to just below the boiling point. Stir and allow to soak for 20 to 30 minutes. Add 3 quarts of cold

**Arasan SF, 1.3 ounces, plus 1 ounce:**

**Lindane (25% WP) or Dieldrin (25% WP) or Chlordane (50% WP) plus 4% Methocel, 1/2 pt**

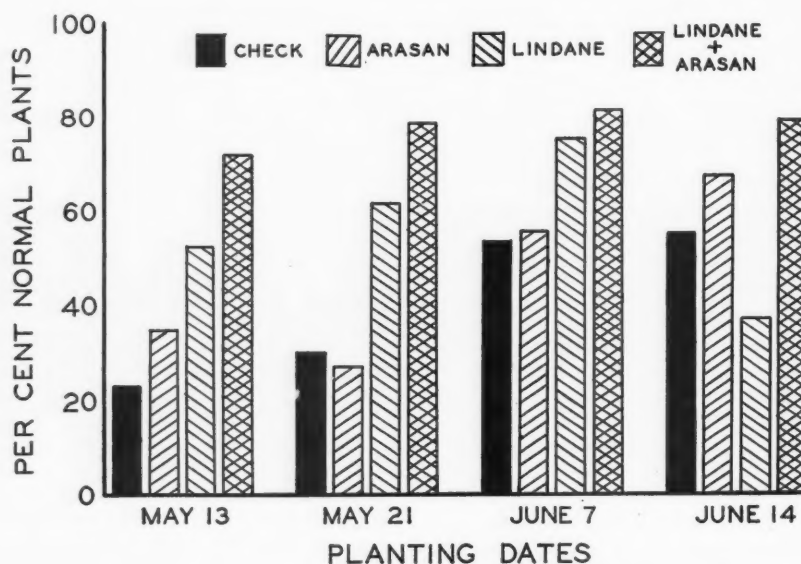
**Table I. This table shows several alternative fungicide-herbicide combinations and the amounts constitute the recommended treatment per bushel of seed for the control of seed-corn maggot.**

water to make 1 gallon of solution and stir until smooth. Allow to cool with occasional stirring. (Larger quantities may be prepared by using larger proportionate amounts of Methocel and water; 1 pound of Methocel, for example, will make 3 gallons of solution.) Store in containers with tight-fitting lids.

Weigh out proper amounts

(Continued on page 42)

Chart at right shows comparative performance of seed treatment of Clark's bush lima beans at four planting dates. Note poor showing of insecticide alone at the date of last planting, which was made on June 14.





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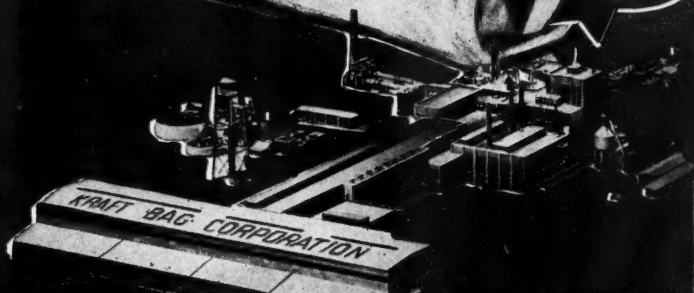
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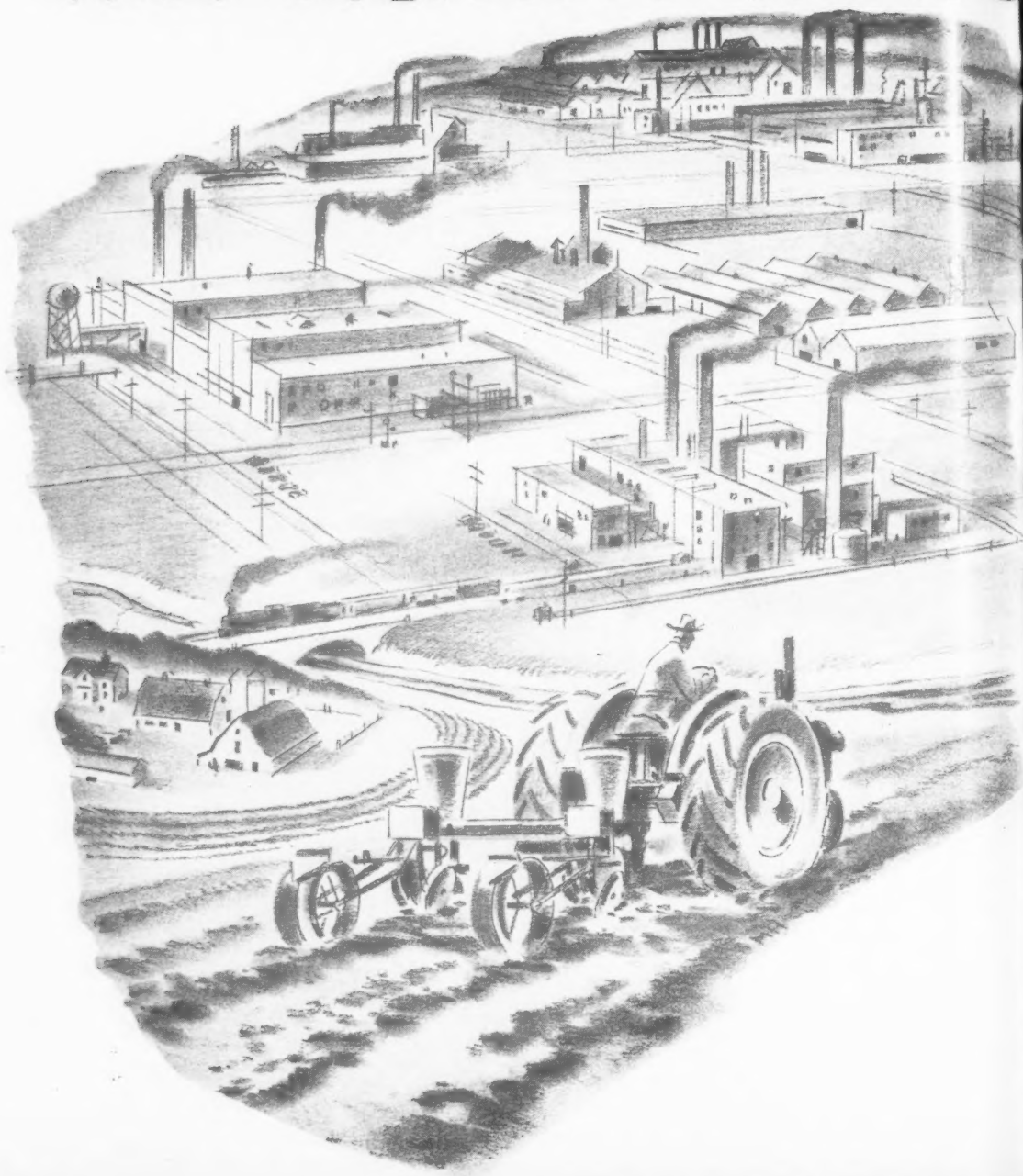
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# Fertilizers by Prescription

A. M. Brodine

**A**N EFFORT to create new markets for agricultural limestone has led to developments that may prove successful in solving many distribution problems in the fertilizer industry. L. W. Hayes, Inc., who owns and operates an agricultural limestone quarry near Kansas City, Mo., was concerned over the downward trend in "agstone" prices. He decided to add to his volume of business by taking on another line of products. As a result, he decided to go into the fertilizer-selling field.

Hayes believes it is only natural to find agricultural limestone producers developing an interest in the fertilizer business. "We have the sales force, the customer lists, truck spreading services, and a wide acquaintance among potential fertilizer users," L. W. Hayes, president of the company, points

out. "Basically," he says, "we are the people who should be foremost in the fertilizer-selling business."

He soon discovered that handling fertilizers is much more complex and costly than handling agricultural limestone. However, he decided to pioneer a service for which no previous pattern had been set. "As far as I know," says Hayes, "we are the first to attempt this kind of service anywhere." He thinks that much of his early experience, while costly, was only naturally so because of the experimental work required, and Hayes feels that the information he gathered is valuable to both agricultural limestone producers and fertilizer manufacturers.

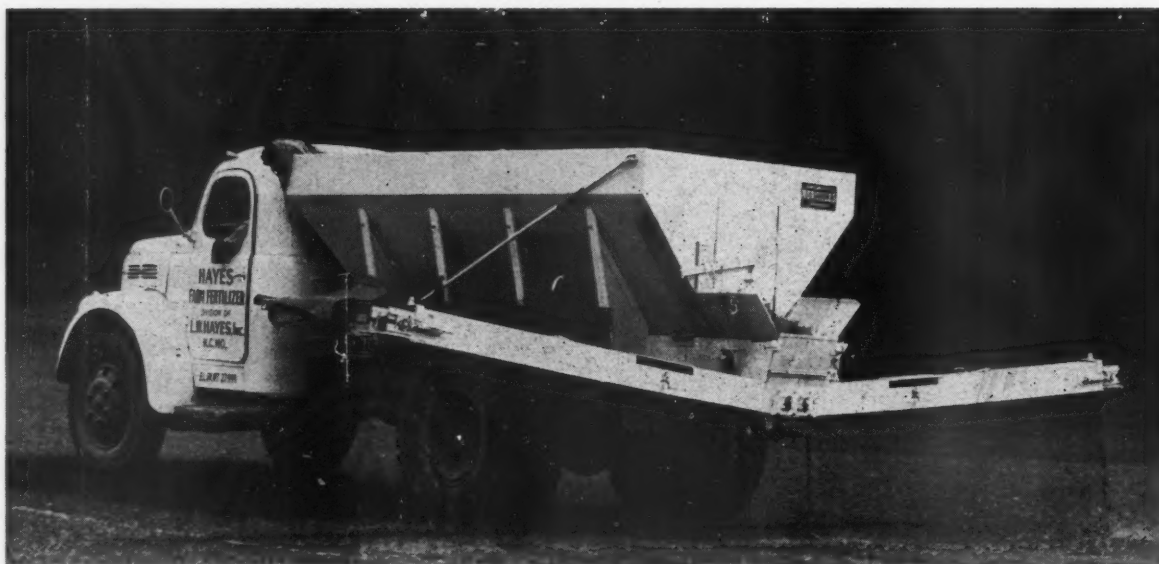
Hayes originally intended to handle rock phosphate and packaged mixed fertilizers. Preliminary investigation, however, showed that in his territory the average rock phosphate requirement was about 1000 pounds per acre. By soil tests he found that almost

every field was deficient in either nitrogen or potash and, in some cases, both. As these elements were required in relatively small quantities per acre, Hayes and his assistants decided it would be impractical to spread them with available commercial equipment.

"To spread rock phosphate," says Hayes, "would have required modification of our lime-spreaders to the extent of installing skirts around the spinners. To apply mixed fertilizers at the rate of two or three hundred pounds per acre was impossible with our lime-spreading equipment. It became apparent that we had to change our spreading procedure in some manner."

After several months of exploratory work, Hayes and his men came to the conclusion that they could render a valuable service to farmers by offering a plant-food blend applied to the soil in direct proportion to its particular deficiencies as shown by accurate soil test.

Commercial chain-type lime spreader of the type Hayes believed to have many advantages for his new service.







Converted cement carrier, with transmission added, is ideal mobile unit for point-of-delivery mixing.

Such a service would call for blending the raw materials that would give bulk required for economical spreading. Agricultural limestone, they concluded after further study, could be added to the blend without chemical reaction, providing the mixture was broadcast within a short time after mixing.

#### Custom Service

With such findings in mind, Hayes, Inc., decided to offer the farmers in their territory a custom-mixed fertilizer. To do this, they had to get mixing machinery with a capacity of at least one truck load. The mixers used by the fertilizer industry did not suit their needs and feed-mixers did not seem to be sufficiently rugged.

"By sheer accident," reports Hayes, "we ran into a unit that was designed for another purpose. It seems there were eight bulk cement carriers built just after the last war. Two were sold to one operator who promptly returned them to the manufacturer because they could be loaded only to half capacity due to highway weight limits. The machines proved to be ideal in every way for carrying out blended material.

"By the time we heard of these carriers, six of them had been scrapped. I purchased the other two and we simply added a transmission so that we could reverse the direction of turning the tanks. Also, we built a feeding hopper in one end."

At that stage, all the Hayes company had by way of success in their new venture were two mixers

and a unique idea. That wasn't enough to go into the prescription fertilizer business. Their next problem was to develop a suitable spreader.

The standard spinner trucks used for spreading limestone would require a skirt attachment in order to eliminate blowing and waste of high-priced fertilizer material. The Hercules Steel Products Corp., Galion, Ohio, market a chain-type spreader that Hayes believed to have many advantages for the purposes he had in mind. It provided highly uniform spread and eliminated losses due to scattering of fertilizers by the wind, an absolute requirement because, as Mr. Hayes puts it, "... the farmer wants all the fertilizer on his fields, not up in the air."

The Hayes company called their operation a "prescription service" and in order to live up to the name, they set up a laboratory in which

business of the Hayes company. With their own soil-testing lab, Hayes, Inc., are able to give one-day soil analyses. Tests are made for calcium, nitrogen, phosphorus and potassium and the company plans to install equipment to enable them to test for trace elements as well.

To date, the firm has tested several thousand samples of soil from a wide area in the environs of Kansas City. "The tests reveal a vivid picture of the farm land in our part of the country, and indicate its real value," says Mr. Hayes. "These tests," he says, "show that we are very deficient in essential plant food elements upon which life on earth depends."

#### Publicity Program

After the company had assembled blending equipment, spreaders, and established their

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*The operations of Hayes, Inc., have attracted wide attention in the quarry industry and in the farm press. Sales of the new service seem to be increasing. The widespread adoption of the methods described, if not the exact materials and equipment, may prove profitable to the fertilizer industry in many parts of the country if such technical difficulties as may exist can be overcome. The procedure seems particularly adaptable to pasture improvement programs.*

---

they could make accurate soil tests. The company reports that the laboratory is the least costly of their operations and has proved to be the most valuable. Although soil samples are tested at low cost by public agencies in the company's territory, the time they require is considered too long for efficient operation of the fertilizer sales

soil-testing laboratory, they were ready to go to work selling their new service. They decided to first stage a demonstration, and the event was held on the Hayes farm at Paola, Kansas. In spite of slow operations due to lack of rehearsals, there was enthusiastic reception from the press, farmers, and others who saw the demonstration.



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PRODUCTION PROBLEMS**



**THE A. J. SACKETT & SONS CO.  
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BALTIMORE 24, MARYLAND**

"Every day of the six months of preparation," recalls Hayes, "we were aware that the job of making our venture successful hinged upon our selling and merchandising problem. We knew our publicity program must be ready as soon as we had something to sell. This was the final preparatory step to the main part of our new service. Our publicity program includes radio, newspaper advertisements, and brochures, and we are considering television for this purpose. We believed that having an exclusive service would bring us enough business to take care of our capacity to produce. Such has been the case since that 'world premiere' at Paola last September."

Before going ahead with sales, the Hayes company had to establish a sales policy especially adapted to their new service. As the company saw the problem, they had several alternatives. "We could have sold the farmer just what he thought he needed without soil test," says Hayes, "or, we could have sold to each farmer the amount of fertilizer his budget would allow. We could have sold rock phosphate by itself and ignored other needed soil nutrients." Hayes rejected all of these possible sales policies in favor of one that would, in his opinion, benefit all concerned.

#### **Complete Service Only**

"We had learned," says Hayes, "that fertilizers are more effective when they are used in proportion to their need as shown by accurate soil tests. Many farmers have failed to get the results they expected from fertilizers. This condition usually attends the farmer who does not believe in testing his soil before he buys fertilizers. We have found that most farmers have not been applying nearly enough essential soil nutrients—thinking they can economize in this way."

Taking such factors into consideration, the Hayes company decided to sell only to those farmers who would have fertilizing materials applied according to soil deficiencies as shown by tests. The Hayes company insisted on selling only those jobs on which they would be allowed to restore all

plant foods at one time. "This," recalls Hayes, "was our biggest gamble in the whole venture."

"We are setting up a service in which we told our customers how little or how much each of them could buy from us. Because of this, some people think we are arbitrary in our operations."

"But we knew that our customers would find that they would get back all of the initial cost the first year and some besides. Of course, weather conditions must be right for this to be true. Much of our material would be available for several years and the farmer would receive income from these unused supplies. All of us know that the return from fertilizers can reasonably be expected to be five to seven dollars for every dollar spent."

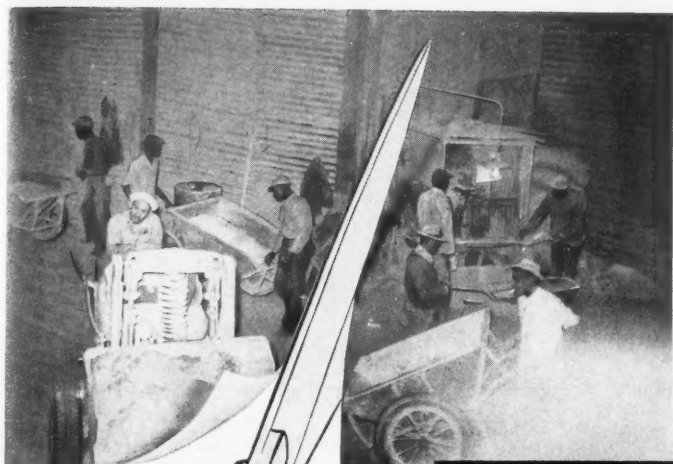
#### **Selling Costs**

Speaking of costs, Hayes says that the cost of restoring the land to a "100 per cent fertility level" varies tremendously in his vicinity from farm to farm. "This cost," says Hayes, "ranges from \$20 to \$50 per acre."

Cost estimates for the particular field on which the demonstration was made went like this: Lime, \$3.00; ammonium sulphate, \$7.74; rock phosphate, \$10.80; mixing expense, \$2.65; hauling and spreading, \$3.35. The total cost per acre amounted to \$27.54. Because the phosphorous in the rock phosphate is only slowly available, it will still be supplying plant food for many seasons to come. Of course, a "starter" fertilizer seeded with the crop is recommended as beneficial.

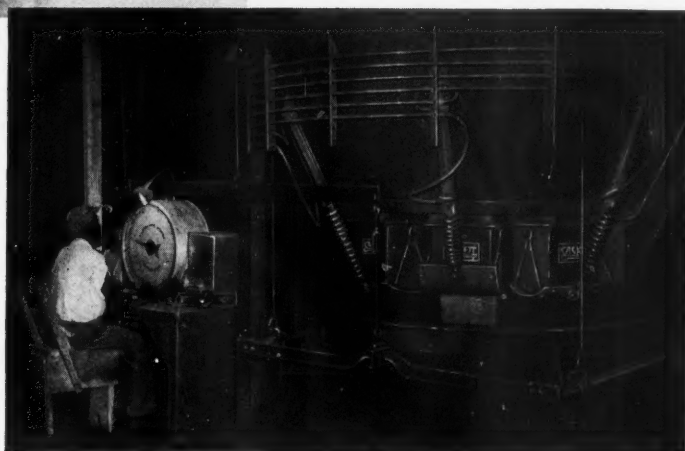
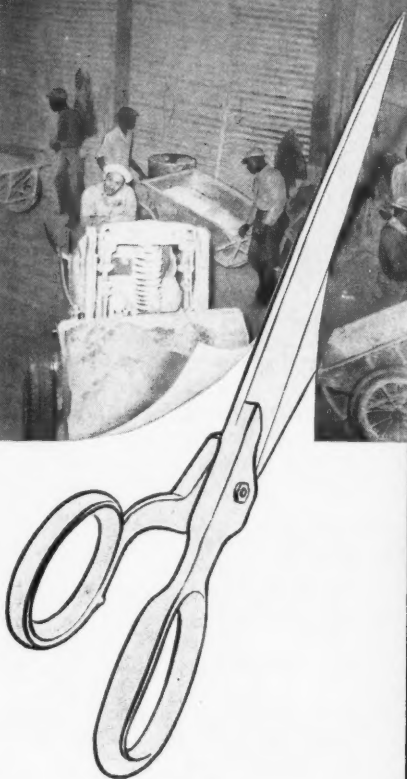
Hayes believes that crops grown on "fully fertile" fields will command highest prices; that the price of produce will be increased if that produce is grown on soil of "100 per cent fertility level" and if the public is so advised. In addition to the direct sales efforts of his "prescription fertilizer" service, Hayes is willing to tackle this aspect of promotion as well. He has already coined a word around which to center his prospective educational program. If Hayes' plan succeeds, the word "fertilified," meaning full fertility, will have the

*(Continued on page 38)*



### ◀ IS THIS YOUR PLAN?

Obsolete batching methods formerly used in this plant accounted for the congestion and gross waste of manpower shown by this unposed photograph.



## THIS SACKETT ONE MAN BATCH-WEIGH SYSTEM

*Cut operation costs 65%*

In the plant pictured here, production cost tumbled 65% when the Sackett System replaced obsolete method formerly used.

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# Industrial News

New Products - New Plants - New Appointments

## Fly-Spray by DuPont

**D**EVELOPMENT of a new insecticide, designed specifically for use in and around dairy buildings, has been announced by the Du Pont Company. This new product now makes possible a complete fly control program for dairy farms through use of just two spray materials.

Both barns and cattle must be sprayed to make such a program effective, Du Pont entomologists point out. Use of the new insecticide in barns, combined with applications of the currently recommended methoxychlor sprays on cattle, will achieve this result. Such a program will combine complete safety from toxic hazards with long residual protection of cows and premises.

The new insecticide for dairy barn use is a combination of two modern chlorinated hydrocarbon compounds — methoxychlor and lindane. It was developed to give dairymen quick kill of flies, and also to keep barns fly-free for a number of weeks following each spraying.

Both these chemicals have been approved by the U. S. Department of Agriculture for fly protection in dairy barns. When used properly, these materials do not contaminate milk. Combined in the proper proportions, the two chemicals supplement the effectiveness of each other.

Dairy fly control problems have been complicated by the appearance of strains of house flies that seem resistant to certain insecticides, and by the discovery, by USDA investigators, that some insecticides tend to show up in the milk and should not be used around dairy operations. Search for a product for barn use which would help dairymen solve these problems resulted in the development of the lindane-methoxychlor insecticide.

Tests during the 1950 fly season,

both at college experiment stations and on dairy farms throughout the country, were carried on to check the efficiency of the new insecticide. When applied as directed, it was reported to give outstanding control of flies under a wide range of operating conditions, and to remain effective up to eight weeks or longer.

The new product may be used

for occasional application to dairy cattle to control mange and lice. It is not recommended for fly control on animals, however, due to the presence of lindane, which is considered too hazardous to the health of milk consumers for safe use at frequent intervals.

The new insecticide for barn spraying is a wettable powder, to be known as Du Pont Dairy Barn Insecticide. It will be packaged in one-pound cans and four-pound bags, with a pound of material in three gallons of water recommended for every 1,500 square feet of surface to be sprayed. The approved material for spraying cattle is offered as Du Pont Dairy Cattle Spray in a variety of package sizes. It is also a wettable powder, with a pound in 12 gallons of water sufficient to treat 25 head.

## Powell Opens New Pesticide Facilities

H. Alvin Smith, President of John Powell & Co., Inc., New York City, has announced the opening of new and expanded laboratory facilities in Port Jefferson, Long Island, N. Y., for chemical and entomological work connected with the production and use of insecticides, herbicides and rodenticides.

The new and modern facilities will handle all control, investigational and research work with the exception of spot control at the Powell manufacturing plants in Brooklyn, N. Y., and in Huntsville, Alabama.

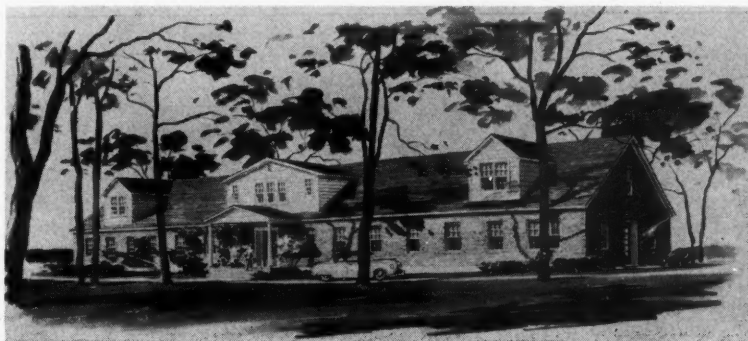
The building site for the new insecticide research center was selected because it is adjacent to New York City, and yet lies in the heart of the Long Island agricultural area. Eight acres of land in

this farm country will enable the company to embark on special farm programs involving the use of agricultural insecticides and herbicides. There also is ample space for the erection of greenhouse facilities for further research and experimental work aimed at better control of insects.

Ten thousand square feet of floor space permit the installation of enough facilities to allow several projects to be conducted simultaneously. All of Powell's investigational and research activities on insecticides, herbicides and rodenticides will be centralized under one roof and under ideal conditions.

Dr. Robert C. Haring, recently manager of Powell's Brooklyn plant has been appointed to direct the activities of the new Port Jefferson research center.

Architect's drawing of Powell's new Long Island Lab.



## English Is New Partner at H. J. Baker

William H. English, Jr., former president of the New York Coffee and Sugar Exchange and trustee of the Franklin Savings Bank, has been admitted to partnership in H. J. Baker & Bro., 100-year-old fertilizer and feed materials firm.

Mr. English, a native of New York, graduated from Princeton in 1921 and began his business career with Arbuckle Bros. in October of that year. In 1929 he became a partner in the firm of W. R. Craig & Co., commodity merchants and brokers. The same year he joined the board of managers of the Coffee and Sugar Exchange. After serving on various committees, he was made vice-president and chairman of the Executive Committee, and in 1933 was elected president of the Coffee and Sugar Exchange, the youngest man to receive this honor in the history of the Exchange.

Mr. English was formerly a senior partner in the firm of C. D. Halsey Co. He withdrew from this firm upon the death of his father to manage the estate of William H. English, whose interests included manufacturing and real estate corporations. He served as director of the Lawyers Trust Company from 1934 until its



William H. English, Jr.

merger in 1950 with Bankers Trust Company. Mr. English served as trustee and chairman of the Building Committee of the Flower Fifth Avenue Hospital from 1928 to 1938; became a member of the board of The Green-Wood Cemetery in 1934, comptroller in 1948, and vice-president in 1949. Made a trustee of the Franklin Savings Bank in 1946, he was named a member of its executive Committee in 1948.

### New Book on Progress in Farm Machinery

The Farm Equipment Institute has published an interesting 64-page book, "Land of Plenty," which gives the complete story of farm mechanization — from the slave-powered crooked stick to the modern tractor. Nearly half of the book is devoted to 163 historical photographs and 13 drawings, sorted from thousands of prints in the files of 222 farm machinery companies, plus other historical sources.

Most of the book is devoted to the evolution of farm machinery by jobs: soil preparation, planting and cultivating, harvesting, making hay and forage.

The book sells for 25 cents a copy and can be obtained from the offices of the Farm Equipment Institute, 608 S. Dearborn St., Chicago 5, Ill.

### Davison Safety Achievement May Set National Record

With a million man-hours without a lost-time accident behind them, the employees of The Davison Chemical Corporation in Bartow, Fla., are well on their way to what may be a national record for safety in the phosphate mining industry.

## Pennsalt's New Plant Now Operating

THE PENNSYLVANIA Salt Manufacturing Company's new plant for formulating insecticide concentrates and finished insecticide products at Montgomery, Alabama, has been completed and is now in production.

The plant, Pennsalt's first in the Southeast, also includes a new

district sales office of the Agricultural Chemicals Department to serve southeastern agriculture. J. Drake Watson is district sales manager and R. O. White is plant superintendent.

Production equipment is designed to manufacture either concentrates of insecticide formula-

According to Dr. Allen T. Cole, manager of the Florida Phosphate Rock Division for Davison, the company has been commended for its achievement during the past year by the National Safety Council in Chicago.

It was believed by Davison officials that this is the first time that a 1,000,000 work-hour safety record has ever been recorded in the phosphate mining industry.

Davison and its employees were presented the Award of Honor for Distinguished Service to Safety by the National Safety Council last August. This award was the first of its kind ever presented in Florida. A similar award was also made to the personnel of the Curtis Bay Works.

### Bemis Buyer Back—Second India Visit to Buy Burlap

Mr. W. D. McLean, assistant director of the Jute Department of the Bemis Bro. Bag Co., Boston, recently returned from a five-week, round-the-world trip to India and Pakistan in the interest of the company's burlap needs. This was Mr. McLean's second trip to India within a year. The primary purpose in both cases was the same; namely, to get more burlap for users in the United States.

While there, he conferred with officials of the Indian government and with members of the entire jute industry, from raw materials to finished goods, on problems affecting shipments from that country to the sixteen Bemis plants in the United States. Mr. McLean participated in conferences with authorities in Calcutta resulting in an Indian burlap allocation system which it is hoped will provide increased burlap supplies from this country during 1951.

tions for other blenders or finished insecticide products ready for growers' use. Products will include a complete line of recommended insecticides for use on cotton, peanuts, soybeans, potatoes and truck crops, and for livestock.

These will include various mixtures of DDT and Pennsalt's 36 per cent gamma isomer benzene hexachloride, both manufactured at the company's Natrona, Pa., plant, and Toxaphene, sulfur, parathion and other active ingredients.

Made available to southeastern growers this season for the first time will be Pencal, Pennsalt's new neutral calcium arsenate. This product, developed and produced at Pennsalt's Bryan, Tex., plant, has the advantage that it can be blended with organic insecticides, such as BHC and parathion, for control of the boll weevil, bollworm, leafworm or aphid, thereby combining these active ingredients in a single application.

In addition to manufacturing facilities, the new plant includes warehouse space for approximately 1,000 tons of finished material. Establishment of this is in line with the company's general policy of providing faster distribution service to meet requirements of southern agriculture.

#### **New Packaging Guide for Multiwall Bag Users**

"Multiwall Packaging Guide," a twenty-page booklet describing and illustrating ways to use all types of multiwall paper bags more efficiently and economically is being distributed by Bemis Bro. Bag Co.

The yearly consumption of nearly two billion multiwall bags emphasizes their importance in shipping a wide variety of products produced in this country. The growing paper shortage and the consequent need for getting better service from paper bags makes the "Multiwall Packaging Guide" especially valuable.

The booklet deals with the storage of empty bags, filling, closing, and handling of filled bags, palletizing and other related topics . . . all designed to help manufacturers get the most profitable use from the multi-wall bags they purchase. The booklet may be obtained by writing this magazine.

FEBRUARY, 1951

#### **Mente Announces**

##### **Executive Changes**

Announcement has been made by Mente & Co., Inc., textile bag manufacturers in New Orleans, of the following promotions and realignment of executive duties, effective immediately: Marshall L. Harper, formerly Assistant Secretary-Treasurer, has become Assistant Vice-President; J. Lucius McGehee is now Assistant Vice-President in charge of Research and Development; while E. Reid Powell, Plant Manager, assumes in addition the title of Assistant Vice-President in charge of Production.

In Mente's Savannah branch, James A. Baggs, Jr., has been made Assistant Manager, and the same title has been given to M. P. Robertson at the Houston branch.

##### **Sales and Earnings Increase**

##### **International Minerals & Chemical Corporation**

Net sales of International Minerals & Chemical Corporation for the six months ended December 31, 1950, were \$25,114,894, compared with \$20,141,879 for the corresponding six-month period in 1949. This was an increase of 25 per cent.

Net earnings for the last six months of 1950 were \$1,796,382 as compared with \$1,212,224 for the corresponding period in 1949, an increase of 48 per cent.

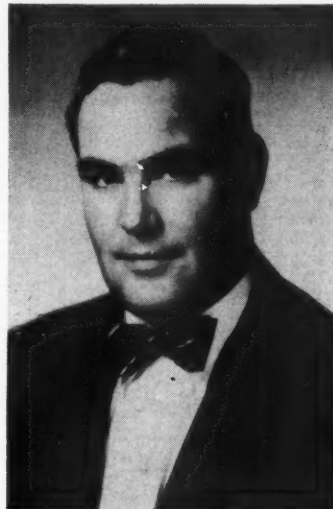
Earnings for the six months ended December 31, 1950, were equivalent to 80 cents per common share computed on the basis of two million shares presently outstanding, compared with 64 cents for the same period the year before.

##### **Davison Chemical Corporation**

Net income after provision for income taxes of The Davison Chemical Corporation for the six months ended December 31, 1950, the first half of the corporation's fiscal year, was \$933,000, as compared with \$510,000 for the similar period of 1949. The net income reported for the six months just ended was equal to \$1.45 per share on 642,667 shares of capital stock outstanding as of December 31, 1950, which includes 128,533 shares of new capital stock sold during the month of December. Net sales for the six months totaled \$16,651,000 compared with \$13,032,000 for the 1949 period.

#### **Appointments at Davison**

R. D. Goodall, who has been with The Davison Chemical Corporation since 1939, has been appointed Assistant to the Vice-President-Marketing of the chemical concern, assuming among other responsibilities those for advertising and public relations, it has been announced by R. L. Hockley, Davison's Vice President in charge of marketing.



R. D. Goodall

He will be succeeded as General Sales Manager-Industrial Division by Norman E. Hathaway, who joined Davison in June, 1946, after three years of service as a Lieutenant in the Navy's Submarine



Norman E. Hathaway

Corps. A graduate of the University of Maryland, Mr. Hathaway has been on the Davison sales staff since 1948.



# A n I l l W i n d . . .

can blow some good for cotton growers as they plunge ahead to meet this year's 28,400,000-acre production goal. Severity of the weather may considerably reduce the incidence of boll weevil infestation which was found hibernating in record numbers in Louisiana immediately before the cold weather struck the South.

However, hot wet weather during June and July can more than offset any reduction in numbers resulting from winter weather.

Industry, therefore, may well find it in the growers interest to not only **continue early ordering and buying programs**, but to point out the continuing danger posed by summer weather so that the scramble of rush panic buying may be avoided as much as possible.

Concerted efforts to **effectively present this appeal** to growers can later be used in reply to those who expect "fire engine" service—and who may find their pleas unanswered because of prior calls. Unanswered calls have a habit of echoing loudly along many a Washington corridor.

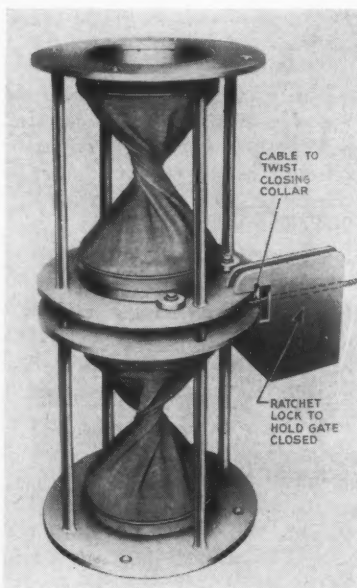
## BAILEY & LERCH

Agricultural Consultants  
Editorial Services

740 Jackson Place, N.W.  
Washington 6, D. C.

## New Bin Valve

The "Twistite Double-Closure Bin Valve," made by the Stephens-Adamson Manufacturing Company, consists of two rubber sleeves joined by a rotating steel collar. Dust and drip-tight closure is obtained by pulling on a cable wrapped around the rotating collar, sealing the opening with a twist in each of the rubber sleeves. The valve is self-opening, the elasticity of the rubber sleeves causing them to resume their cylindrical shape immediately when tension on the cable is released. Since the flexible rubber sleeves can wrap themselves easily around lumps caught in the valve during closure, there is no danger of leakage due to variation in the size of material particles. By mounting a ratchet lock on the valve to hold the cable in the closed position, the "twistite" valve can be hand controlled locally. Remote hand control can be obtained by mounting the ratchet lock at any desired location and running the control cable to it by a simple pulley arrangement. The valve can also be controlled



Flexible Valve

automatically by the use of a small actuating motor.

With the ratchet cable-lock mounted on the valve frame, the standard 6-inch valve weighs 35 pounds. It will handle lump sizes up to 2-inches and requires a 30-pound cable pull for closure. Other valve sizes are available.

## Miller New President of Arkell and Smiths

At the annual Stockholders Meeting of Arkell and Smiths, bag manufacturers of Canajoharie, New York held on January 20, Carl A. Miller was elected a director of the company.



Carl A. Miller

Mr. Miller is Senior Vice President of the Irving Trust Company. A graduate of New York University, he joined the Irving Trust Company in 1920 as Assistant Commercial Engineer. After several promotions, he was elected Senior Vice President in 1950. In addition to being a director of Arkell and Smiths, he is a director in the Three States Realty Corporation and Hudson House, Inc. of New York City. He is also a trustee and member of the Tarrytown Hospital and a member of the Visiting Committee, School of Engineering, New York University.

## Appointments at U.S. Steel

The appointment of Charles W. Baldwin as Director and John W. Clinton as Assistant Director of the Coal Chemical Sales Division, Commercial Department, of the United States Steel Company, has been announced by David F. Austin, Executive Vice President—Commercial. Mr. Baldwin replaces John V. Freeman, who is retiring after 43 years of service with U. S. Steel.

The Coal Chemical Sales Division handles the sale of coal chemicals produced at (Continued on page 36)

AMERICAN FERTILIZER & ALLIED CHEMICALS



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Manufacturers of

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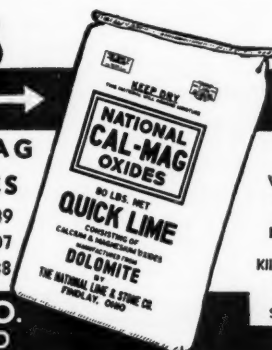
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HYDRATED  
LIME (165 TNP)  
and  
KILN DRIED RAW  
DOLOMITE  
(107 TNP)  
Screened to size

**The NATIONAL LIME and STONE CO.**  
General Offices . . . . . FINDLAY, OHIO

(From page 34) the Clairton, Pa.; Gary, Ind.; and Joliet, Ill., plants of United States Steel Company and also solicits sale of coal chemical products of the Tennessee Coal, Iron and Railroad Company, the National Tube Company, the American Steel and Wire Company and the Columbia Steel Company. Sales offices are maintained in Pittsburgh, New York, Cleveland, Chicago, Birmingham and San Francisco. Among the products handled by this Division are sulphate of ammonia and various materials used in the formulating of pesticides, such as phenol, cresol, creosote oil, and the light oils such as benzene and xylene.

Mr. Baldwin, a graduate of Colgate University and the University of Pittsburgh, started with U. S. Steel in 1930 as a chemist at Clairton Coke Works of Carnegie Steel Company. He joined the United States Steel Corporation in New York as technical assistant in the by-product sales department in 1937, and transferred to the United States Steel Corporation of Delaware in a similar capacity in 1938. He has since been promoted to positions of increasing

responsibility and at the time of his appointment was assistant director, coal chemicals.

Mr. Clinton was first employed by U. S. Steel in 1930 as junior clerk in the by-products division, order department, Carnegie Steel Company in Pittsburgh. After several promotions, he resigned to accept the position of associate production engineer, U. S. Army Pittsburgh Ordnance District, where he remained until re-employed by the Corporation in 1941 as technical sales assistant, coke by-product sales, United States Steel Corporation of Delaware. He was made general product manager, coal chemical sales division, in 1948, the position he held at the time of his present appointment.

#### Helicopter Helps Paint Monsanto Stack

How to repaint a 150-foot stack with a minimum interruption in plant operation was demonstrated recently with the aid of a helicopter at the Monsanto Chemical Com-

pany plant in Everett, Mass.

The helicopter was the solution to the problem facing Russell L. Miller, plant manager, when he decided to paint the tall, pencil-like stack. By calling on the aircraft, Mr. Miller was able to avoid a day-and-a-half delay in painting operations—the time generally consumed in erecting scaffolding.

He did it this way. Steeplejack George F. Burgess of the Thomas J. Hind Company, Boston contractors, took off in the helicopter to the top of the stack. He took with him his staging hook, block and fall, and other equipment.

Bob Broadley of the East Coast Aviation Corporation, piloted the helicopter and held it steady for Mr. Burgess. The steeplejack simply leaned out the door and dropped his staging hook to the top of the stack. He then leisurely played out block and fall into the correct position. The helicopter descended to the plant and the steeplejack hopped out. He went to the base of the stack, slipped into the bos'n's chair attached to the rigging and went to work.

Total time, including take-off and landing: One half hour.

# V-C

<h2 style="margin: 0;">V-C fertilizers</h2> <p style="margin: 0;">Complete Fertilizers    Superphosphate Concentrated Superphosphate Phospho Plaster    Sulphuric Acid</p>														
<h2 style="margin: 0;">V-C phosphate rock products</h2> <p style="margin: 0;">Phosphate Rock, Ground and Unground Calcined Phosphate Rock    Nodulized Phosphatic Materials</p>														
<h2 style="margin: 0;">V-C cleansers</h2> <p style="margin: 0;">The Vicar® Line of Cleansers</p>	<h2 style="margin: 0;">V-C fibers</h2> <p style="margin: 0;">Vicara® Textile Fibers Zycon Fibers</p>	<h2 style="margin: 0;">V-C bags</h2> <p style="margin: 0;">Burlap Bags Cotton Bags Paper Bags</p>												
<h2 style="margin: 0;">V-C chemicals</h2> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Phosphoric Acids</td> <td style="width: 33%;">Trisodium Phosphate</td> <td style="width: 33%;">Liquid Sodium Silicates</td> </tr> <tr> <td>Phosphorus</td> <td>Tetrasodium Pyrophosphate</td> <td>Nicotine</td> </tr> <tr> <td>Calcium Phosphates</td> <td>Sodium Tripolyphosphate</td> <td>Tetra Ethyl Pyrophosphate</td> </tr> <tr> <td>Disodium Phosphate</td> <td>Sodium Metasilicate</td> <td></td> </tr> </table>			Phosphoric Acids	Trisodium Phosphate	Liquid Sodium Silicates	Phosphorus	Tetrasodium Pyrophosphate	Nicotine	Calcium Phosphates	Sodium Tripolyphosphate	Tetra Ethyl Pyrophosphate	Disodium Phosphate	Sodium Metasilicate	
Phosphoric Acids	Trisodium Phosphate	Liquid Sodium Silicates												
Phosphorus	Tetrasodium Pyrophosphate	Nicotine												
Calcium Phosphates	Sodium Tripolyphosphate	Tetra Ethyl Pyrophosphate												
Disodium Phosphate	Sodium Metasilicate													

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by neutralizing  
excess acid.

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and drilling  
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rotting of  
fertilizer bags.

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of nitrogen-anhydrous  
ammonia.

*Over 1000 tons of anhydrous  
ammonia are being produced each week at CSC's  
Dixie Plant at Sterlington, La. CSC is working at top capacity  
to supply this raw material to the fertilizer industry. The major part  
of this around-the-clock production is being converted  
into fertilizer by Gulf Coast manufacturers.*



AGRICULTURAL DIVISION • COMMERCIAL SOLVENTS CORPORATION • 17 EAST 42nd STREET, NEW YORK 17, N. Y.

## Pasture-Livestock

(from page 18) complete proteins.

"I believe," said Albrecht, "that many of our degenerative diseases are the result of malnutrition. It could be that destructive microbes discover a body suffering from malnutrition and simply move in a little bit early."

Hilton L. Bracey, chairman of the State Committee on Production and Marketing, Columbus, Missouri, said, "The farmer's job in this present emergency is all-out production. Our goal in 1951 is to improve one-half million acres of pastures."

Carl Humphrey, State Director of Vocational Agriculture, Department of Education, Jefferson City, Missouri, emphasized that vocational agriculture teachers and students can play a major part in making the Pasture-Livestock program's proposed improvements a reality. Humphrey said, "In Missouri we have 1000 teachers, 11,000 regular students, and 15,600 veteran trainees. Their future program is geared to fit in with the over-all state program."

Arnold Klemme, Extension Agronomist, said, "We will need all of the possible fertilizer materials to produce more nutritious food for the people of America in this long emergency. The strongest, most important point of this program is that we do not need to take cropland out of production for pasture and grassland. The big job is to improve our existing grasslands."

Professor J. W. Burch, Director, Missouri Agricultural Extension Service, in summarizing the conference said, "Our main objective is to devise methods which will give

us all-out and sustained production for a long emergency." He cited the case of a farmer who increased the feeding capacity of a pasture from ten cows to twenty-two cows by simple fertilizer and management practices and at the same time increased the butterfat production of each cow in his herd. "That is why," said Burch, "we call our program a Pasture-Livestock program." ♦

## Prescription Fertilizers

(from page 28) same connotation with reference to food that the phrase "100 per cent wool" now has in connection with clothing.

### Fertility Survey

Sales-wise, the Hayes fertilizer service is built around a "Fertility Survey" which sells for \$25.00. A soils technician takes samples of the farm and sends them to the laboratory. There, working from the analysis and taking into consideration such factors as past crop history, recent lime and fertilizer applications, and future crop plans, an agronomist writes a prescription for the farm in question. The prescription is delivered to the farmer by a salesman qualified to advise the customer on soil planning. Hayes terms this the "selling call."

Large posters outlining the various features of the "Fertility Survey" are displayed in places likely to be seen by prospects. One such poster carries a headline that asks, in bold black and red letters, "Are You Soil Blind?" A footnote to the poster explains that "Soil Blind" is the Hayes company's term for a farmer who doesn't

know the "fertility level" of his land.

Hayes intends to keep his equipment mobile. Although others who enter the field may have different conditions and so decide to operate on a somewhat different basis, to Hayes, a high degree of mobility is essential.

"Weather conditions really control this new service," he says. "We have been rained out and then traveled only twenty miles to find the fields dry and ready for treatment."

"We attempt to schedule our salesmen so they are taking soil samples in good weather and are selling new jobs on rainy days.

Hayes believes there is a great potential in the sale of limestone-fertilizer prescription mixtures. "For example," he says, "our home quarry is in Harrison County where there are 265,000 acres of cropland and pasture. According to our tests, it would require not less than 280,000 tons of rock phosphate to restore the phosphorous level to 100 per cent. Not less than 30,000 tons of ammonium nitrate would be used to restore nitrogen to where it should be; and the potassium deficiency is equal to 12,000 tons of muriate of potash. Adding the costs of these materials, we find that they amount to \$7,000,000 at today's prices. That is just for one county—an average county in Missouri.

"We like the fertilizer business," concludes Hayes. "It goes along well with our agstone business and we aren't going to be surprised if it grows into a big share of our total volume. If it does, we will have the know-how to take care of it." ♦

BONE MEAL

TANKAGE

BLOOD

SHEEP—COW—POULTRY MANURE

CASTOR POMACE

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HOOF MEAL

ALL FERTILIZER MATERIALS

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# FERTILIZER MATERIALS MARKET

## New York

February 8, 1951

### Organics

Organic fertilizer materials over the past month have shown a decidedly firm price tone but since price controls were invoked there has been a tendency by both buyers and sellers to stand aside and see the full effects of this order. This has necessarily reduced the amount of trading in most of these materials. Last sales of tankage and blood were made on the basis of \$9.00 per unit of ammonia (\$10.94 per unit N), f.o.b. eastern points. Cottonseed meal was firm with last sales at \$86.00 per ton, f.o.b. Memphis, but some re-sale soybean meal appeared on the market for quick shipment at prices slightly under the producers prices at \$63.00 per ton in bulk, f.o.b. Decatur, Ill. Linseed meal was steady.

### Fish Meal

No great change was noted in this material. Offerings of menhaden fish meal are pretty cleaned up but a considerable amount of important fish meal continues to arrive at various ports and is being offered at prices slightly under the menhaden price.

### Bone Meal

With the advent of price controls, several producers withdrew from the market for the time being and offerings were hard to locate. Very little foreign material was being offered and a tight situation is looked for during the balance of the current fertilizer season.

### Hoof Meal

This material was strong and offerings were difficult to locate. Last sales were made on the basis of \$7.75 per unit of ammonia (\$9.42 per unit N), f.o.b. Chicago, but no offerings at present were noted.

### Superphosphate

On account of the sulphuric acid situation, a tight supply situation is looked for during the next 60 days as some areas were drawing on neighboring areas for their needed supplies. Producers were trying hard to keep up shipments. Triple superphosphate was in heavy demand in all sections and supplies are limited to contracts.

### Potash

Buyers were taking delivery against contracts and demand was good with the approach of the heavy mixing season. Producers were said to be sold out and offerings of foreign potash seemed to have dried up for the time being.

## Philadelphia

February 8, 1951

The supply position of practically all chemical fertilizer materials is tight, and the general market is decidedly unsettled. Deliveries to the farmers were well under way, which enabled the mixing plants to continue operations. This situation was, however, upset by the rail strike, and while it had been expected that fertilizer consumption this season would materially exceed last year, the outlook now is not too encouraging. The uncertainty of price ceilings and government controls do not help matters.

*Sulphate of Ammonia.*—Synthetic remains definitely tight, but coke-oven grade is moving quite regularly against contracts and is not seriously short.

*Nitrate of Ammonia.*—This remains definitely tight with demand well ahead of production.

*Nitrate of Soda.*—There is increased inquiry due to higher prices of other nitrogen materials, and the normal seasonal demand should accelerate the movement of this material.

*Blood, Tankage, Bone.*—There

seems to be no shortage of blood and tankage but offerings are limited due to price ceilings uncertainty. \$9.00 per unit of ammonia (\$10.94 per unit N) has been asked for both blood and tankage, but buyers seem indisposed to pay this figure. On the other hand packers seem to feel that price for hogs and cattle is now too high to justify reduced prices for by-products. Bone meal continues to be quoted at \$65.00 per ton.

*Castor Pomace.*—No change is reported in the price, \$5.50 per unit of ammonia (\$6.68 per unit N) but there seem to be no free offerings in the market. Some has been offered from Europe, however.

*Fish Scrap.*—Menhaden meal has been quoted higher at \$140.00 per ton, with unground scrap at \$130.00.

*Superphosphate.*—This begins to get tighter as seasonal demand increases, and particularly in view of the scarcity of sulphuric acid. No recent price changes are noted.

*Potash.*—Production is at full capacity and not equal to present demand. The foreign position is said to be strengthening.

## Charleston

February 8, 1951

All prime fertilizer ingredients, such as nitrogen, superphosphate and potash, are in heavy demand and in tight market positions. Superphosphate at present is the most critical fertilizer ingredient on the list with little prospect of alleviation of the tight supply situation this season.

*Organics.*—Organic fertilizer materials continue in relatively strong market positions with supplies limited and demand fairly active. Packing house products remain at price levels too high to interest most fertilizer manufacturers. Practically no imported nitrogenous tankage is being offered. Domestic nitrogenous tankage producers are

in a sold-up position with the market nominally \$4.35 to \$5.00 per unit of ammonia (\$5.29 to \$6.08 per unit N), in bulk, f.o.b. production points.

**Castor Pomace.**—Domestic producers recently offered a limited tonnage for shipment through April 1951, and most of this has been taken up by buyers. Price is \$5.50 per unit of ammonia (\$6.68 per unit N), in bags, f.o.b. Northeastern production points. The material analyzes minimum 5.75 per cent ammonia.

**Dried Ground Blood.**—Market in the New York area is nominal at around \$9.50 per unit of ammonia (\$11.55 per unit N) in bulk. The Chicago market is still pegged at \$9.25 per unit of ammonia (\$11.24 per unit N) in bulk, delivered Chicago area.

**Polash.**—Demand continues in excess of supply and current strike on the railroads has further hampered the movement. Prices continue unchanged.

**Ground Cotton Bur Ash.**—Supplies continue limited but some tonnage is available for prompt and spread February/March/April shipment. This material tests 30/40 per cent K<sub>2</sub>O, which is primarily in the form of carbonate of potash. Prices continue firm.

**Phosphate Rock.**—Market continues firm with steady seasonal demand on the part of acidulators. Here and there acidulators are forced to reduce drawings because of shortage of sulphuric acid.

**Superphosphate.**—Price of triple superphosphate has been advanced to 87 cents per unit A.P.A. in bulk, at East Tampa, Florida. Demand is far in excess of supply for this

grade material, and the market is extremely tight. Normal superphosphate also is extremely tight in supply, largely due to the shortage of sulphuric acid. Sellers in the Baltimore area have withdrawn from the market. Last price paid at Baltimore was 81 cents per unit A.P.A. in bulk, f.o.b. Baltimore. Prices in Southeast vary from 80 cents to 90 cents with no supplies being offered.

**Sulphate of Ammonia.**—This market continues tight with no surplus supplies available, above contracts.

**Ammonium Nitrate.**—The market on this material is still very tight indeed, with demand far in excess of supply. Prices are firm at ceiling levels.

**Nitrate of Soda.**—Demand is seasonal and supply position comfortable. It is reported the producers of imported nitrate of soda have advised customers that they can expect the same amount of material as these customers received during the last season, although it is indicated they may not be able to furnish any additional.

#### Totman Appointed to Maine Agricultural Legislative Post

James C. Totman, Assistant Treasurer of Summers Fertilizer Company operating out of their Bangor, Maine office, has been appointed to the Agricultural Committee of the State of Maine's 1951 Legislature to which he was elected last September. Totman is also serving his second year of a three-year term as member of the Bangor City Council and was recently elected Chairman of their Public Works Committee.

#### Pesticides for Dairy Cattle

For controlling stable flies and houseflies in barns and milk sheds, Dr. Leonard Swanson, parasitologist with the University of Florida, recommends spraying with a mixture of 10 pounds of 25 per cent Lindane and 100 gallons of water, applying two gallons to every 1000 square feet of walls, ceilings and floors of barns and sheds, and to outside breeding places. Drainage of swampy places will reduce the number of horse flies and deer flies.


To control grubs, spray with power sprayer at 400 pounds per square inch nozzle pressure a mixture of 10 pounds of derris or cube powder, 8¾ pounds of Methoxychlor (50 per cent wettable) and 100 gallons of water is recommended.

#### WANT ADS

**For Sale:** Complete Fertilizer Works with Sturtevant 40-Ton Den and Raymond Mill, favorable rail and water rates, 44,000 sq. ft. in mixing plant, commands favorable sales territory. Address "325" care AMERICAN FERTILIZER & ALLIED CHEMICALS, Philadelphia 7, Pennsylvania.

**Wanted,** by old established firm, man between the ages of 30 and 40 to headquarter in and travel the Midwestern territory on fertilizer materials. In replying give full details, references and indication of remuneration desired. Party experienced in this field having acquaintance and contacts with fertilizer manufacturers that area will be given preferred consideration. Address "330" care AMERICAN FERTILIZER & ALLIED CHEMICALS, Philadelphia 7, Pa.

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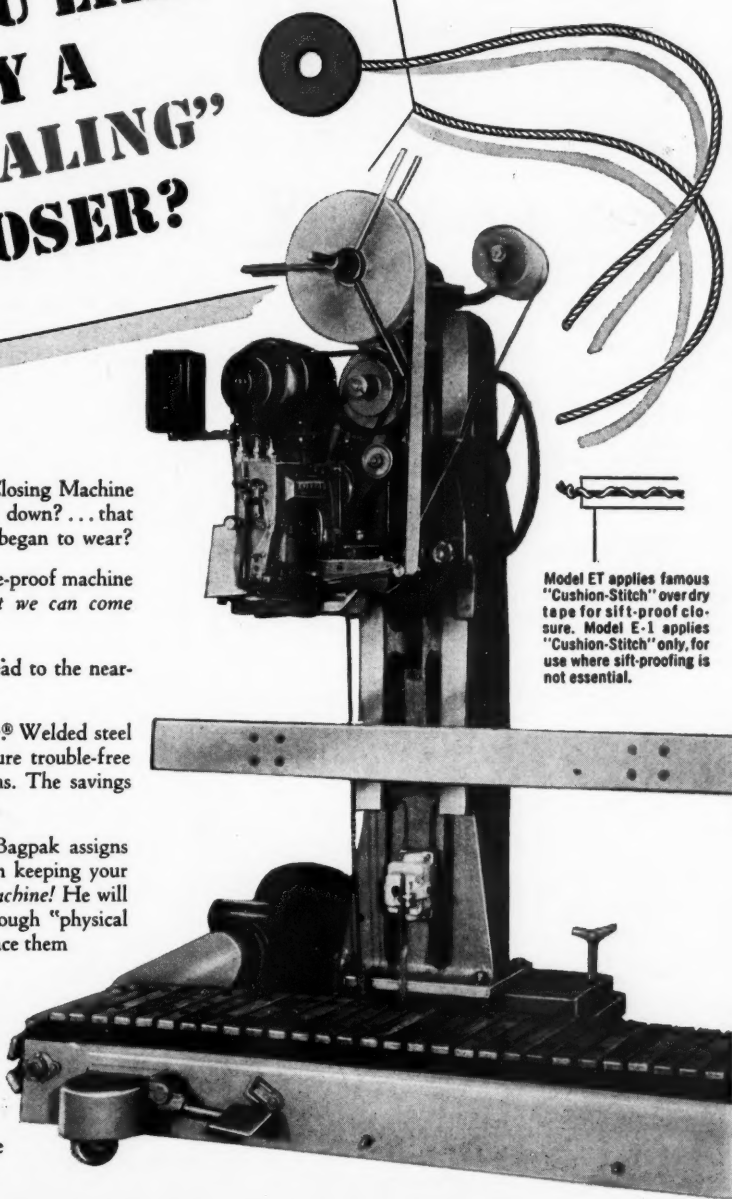
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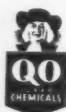
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PHILADELPHIA 7, PA.

## Fungicide-Herbicide Combination

(Continued from page 22)

of insecticide and fungicide and shake in closed container until thoroughly mixed. Add this dry mixture to the required amount of 4 per cent Methocel and stir until smooth.

As much as 200 to 300 pounds of seed can be treated efficiently by one or two men. Place seed in a flattened pile on a clean smooth floor or tarpaulin. The proper amount of slurry mixture is then distributed over the seed. (Small seed may be treated with slightly increased amounts of slurry mixture, up to 10 to 12 ounces per bushel. Dosage for Fordhook lima beans should not be increased.)

Immediately rake seed to distribute slurry, with occasional shoveling until seed is dry. With sufficient air circulation a batch of seed may be treated in 15 to 20 minutes.

Another method of preparing the treatment mixture is to add the proper quantity of a dry form of Methocel directly to the insecticide and fungicide before wetting. This dry mixture is then slowly added, with stirring, to the required volume of water. It should be stirred until a smooth dispersion is obtained. For example, to treat 1 bushel of beans, mix dry 1 ounce of lindane, 1 1/3 ounces of Arasan SF, and 1/3 ounce powdered Methocel; add slowly to 1/2 pint of water.

The effect of storing treated seed over long periods has not been fully studied; therefore, it is suggested that treatment be made not over 3 weeks before planting. ♦

## Letters

"Congratulations on the new makeup of AMERICAN FERTILIZER AND ALLIED CHEMICALS, Issue No. 1, Volume 114. It is an outstanding improvement in appearance and contents."

JIM TOTMAN  
Summers Fertilizer Company  
Baltimore, Md.

"... shows real improvement..."

RAYMOND P. WIGGERS  
Advertising Manager  
The Frank G. Hough Company

"... a vast improvement ... congratulations are certainly in order..."

A. B. MERRIAM  
Advertising Manager  
Bemis Bros. Bag Company

"a big improvement ... (but) I sincerely hope that you will keep the identity of your publication as the mouthpiece for the fertilizer industry rather than just

AMERICAN FERTILIZER & ALLIED CHEMICALS



a copy of some other paper that's in the field. . . . I am sorry that you are making a monthly out of this magazine."

VINCENT SAUCHELLI  
Director, Agricultural Research  
Davison Chemical Corporation

Our thanks to Dr. Sauchelli, a long-time contributor as well as subscriber to these columns, for his thoughtful comments. In branching out to include pest-control chemicals, AF & AC copies no one, is merely continuing its role of nearly 60 years standing by serving the over-all interests of the fertilizer industry which has itself branched out in recent years to the extent that today a large segment of the plant-food industry is interested in producing chemicals for protecting crop-yields against diseases and pests of all kinds. (See page 11, this issue.) AF & AC is now published monthly so as to do a better, more thorough job of covering all phases of the industry.

"... Having been a reader of your magazine for longer than I would like to admit and having been an advertiser for almost the same period, I would like to compliment you on the transformation you have accomplished in this publication. It is a credit to the industry."

GEO. W. McCARTY  
President  
Ashcraft-Wilkinson Company

"Both the chemical and fertilizer industries, we feel, have a common task in presenting full and accurate facts on ammonium nitrate to those who handle and use it. . . . certainly ammonium nitrate is one of the most important and useful of modern fertilizers. Congratulations on your excellent handling and presentation of the article.

ROBERT L. TAYLOR  
Executive Vice President  
Manufacturing Chemists' Association

"... a fine job in preparing the article on ammonium nitrate . . ."

M. F. CRASS, JR.  
Secretary  
Manufacturing Chemists' Association

"... very much interested in the article "Sodium as a Fertilizer" on page 9 of your January issue. Would it be possible to obtain reprints of it, say at least 100?

HERBERT C. BREWER  
Chilean Nitrate Educational Bureau

Reprints of articles appearing in AMERICAN FERTILIZER & ALLIED CHEMICALS are usually available in amounts of more than 100 at nominal cost if request is made promptly after issue is received.—ED.

Letters from readers are always welcome. As many will be printed as space allows, but we shall reserve the right to condense. Names will be withheld upon request, but all letters must be signed.

FEBRUARY, 1951

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Baker & Bro., H. J., New York City  
Barrett Div., Allied Chemical & Dye Corp., New York City  
Commercial Solvents Corp., New York City  
Davison Chemical Corporation, Baltimore, Md.  
International Minerals & Chemical Corporation Chicago, Ill.  
Lion Oil Company, El Dorado, Ark.

Koppers Company, Inc., Tar Products Div., Pittsburgh, Pa.

McIver & Son, Alex. M., Charleston, S. C.

Phillips Chemical Co., Bartlesville, Okla.

Spencer Chemical Co., Kansas City, Mo.

United States Steel Corp., New York City

Virginia-Carolina Chemical Corp., Richmond, Va.

Woodward & Dickerson, Inc., Philadelphia, Pa.

## CHEMISTS AND ASSAYERS

Gascoyne & Co., Baltimore, Md.  
Shuey & Company, Inc., Savannah, Ga.  
Wiley & Company, Baltimore, Md.

## CONDITIONERS

Jackle, Frank R., New York City  
Keim, Samuel D., Philadelphia, Pa.  
McIver & Son, Alex. M., Charleston, S. C.  
National Lime & Stone Co., Findlay, Ohio  
Quakers Oats Company, Chicago, Ill.

## COTTONSEED PRODUCTS

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
Jackle, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.

## DRYERS

Sackett & Sons Co., The A. J., Baltimore, Md.

## ENGINEERS—Chemical and Industrial

Chemical Construction Corp., New York City  
Marietta Concrete Corporation, Marietta, Ohio  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.  
Titlestad Corporation, Nicolay, New York City

## FERTILIZER (Mixed) MANUFACTURERS

American Agricultural Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Davison Chemical Corporation, Baltimore, Md.  
International Minerals & Chemical Corporation, Chicago, Ill.  
Planters Fertilizer & Phosphate Co., Charleston, S. C.  
Southern States Phosphate & Fertilizer Co., Savannah, Ga.  
Virginia-Carolina Chemical Corp., Richmond, Va.

## FISH SCRAP AND OIL

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
Jackle, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
Summers Fertilizer Co., Baltimore, Md.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## HOPPERS

Atlanta Utility Works, The, East Point, Ga.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Machine Works, Aurora, Ind.

## IMPORTERS, EXPORTERS

Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
Southern States Phosphate & Fertilizer Co., Savannah, Ga.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## INSECTICIDES

American Agricultural Chemical Co., New York City

## LIMESTONE

American Agricultural Chemical Co., New York City  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
McIver & Son, Alex. M., Charleston, S. C.  
National Lime & Stone Co., Findlay, Ohio

## LOADERS—Car and Wagon

Hough Co., The Frank G., Libertyville, Ill.  
Sackett & Sons Co., The A. J., Baltimore, Md.

## MACHINERY—Acid Making and Handling

Atlanta Utility Works, The, East Point, Ga.  
Chemical Construction Corp., New York City  
Monarch Mfg. Works, Inc., Philadelphia, Pa.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## MACHINERY—Ammoniating

Sackett & Sons Co., The A. J., Baltimore, Md.

## MACHINERY—Grinding and Pulverizing


Atlanta Utility Works, The, East Point, Ga.  
Bradley Pulverizer Co., Allentown, Pa.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

(Continued on page 46)



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Atlanta Utility Works, The, East Point, Ga.  
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Hayward Company, The, New York City  
Hough Co., The Frank G., Libertyville, Ill.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## MACHINERY—Mixing, Screening and Bagging

Atlanta Utility Works, The, East Point, Ga.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## MACHINERY—Power Transmission

Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## MACHINERY—Superphosphate Manufacturing

Atlanta Utility Works, The, East Point, Ga.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## MANGANESE SULPHATE

McIver & Son, Alex. M., Charleston, S. C.

## MINOR ELEMENTS

Tennessee Corporation, Atlanta, Ga.

## MIXERS

Atlanta Utility Works, The, East Point, Ga.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## NITRATE OF SODA

American Agricultural Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
Barrett Div., Allied Chemical & Dye Corp., New York City  
International Minerals & Chemical Corporation, Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.

## NITROGEN SOLUTIONS

Barrett Div., Allied Chemical & Dye Corp., New York City  
Lion Oil Company, El Dorado, Ark.  
Phillips Chemical Co., Bartlesville, Okla.  
Spencer Chemical Co., Kansas City, Mo.

## NITROGENOUS ORGANIC MATERIAL

American Agriculture Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
International Minerals & Chemical Corporation, Chicago, Ill.  
Jackle, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## NOZZLES—Spray

Monarch Mfg. Works, Philadelphia, Pa.

## PHOSPHATE ROCK

American Agricultural Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
International Minerals & Chemical Corporation, Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
Virginia-Carolina Chemical Corp., Richmond, Va.

## PLANT CONSTRUCTION—Fertilizer and Acid

Atlanta Utility Works, The, East Point, Ga.  
Chemical Construction Corp., New York City  
Monsanto Chemical Co., St. Louis, Mo.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.  
Titelstad Corporation, Nicolay, New York City

## POTASH SALTS—Dealers and Brokers

American Agricultural Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
International Minerals & Chemical Corporation, Chicago, Ill.  
Jackle, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.

## POTASH SALTS—Manufacturers

American Potash and Chemical Corp., New York City  
Potash Co. of America, New York City  
International Minerals & Chemical Corporation, Chicago, Ill.  
United States Potash Co., New York City

## PRINTING PRESSES—Bag

Schmutz Mfg. Co., Louisville, Ky.

## REPAIR PARTS AND CASTINGS

Atlanta Utility Works, The, East Point, Ga.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## SCALES—Including Automatic Bagging

Atlanta Utility Works, The, East Point, Ga.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## SCREENS

Atlanta Utility Works, The, East Point, Ga.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman Foundry and Mach. Works, Aurora, Ind.

## SEPARATORS—Air

Sackett & Sons Co., The A. J., Baltimore, Md.

## SPRAYS—Acid Chambers

Monarch Mfg. Works, Inc., Philadelphia, Pa.

## STORAGE BUILDINGS

Marietta Concrete Corporation, Marietta, Ohio

## SULPHATE OF AMMONIA

American Agricultural Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
Barrett Div., Allied Chemical & Dye Corp., New York City  
Jackle, Frank R., New York City  
Koppers Co., Inc., Tar Products Div., Pittsburgh, Pa.  
Lion Oil Co., El Dorado, Ark.  
McIver & Son, Alex. M., Charleston, S. C.  
Phillips Chemical Co., Bartlesville, Okla.  
United States Steel Corp., New York City  
Woodward & Dickerson, Inc., Philadelphia, Pa.

## SULPHUR

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Texas Gulf Sulphur Co., New York City

## SULPHURIC ACID

American Agricultural Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
International Minerals & Chemical Corporation, Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
Planters Fertilizer & Phosphate Co., Charleston, S. C.  
Southern States Phosphate Fertilizer Co., Savannah, Ga.  
U.S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.  
Virginia-Carolina Chemical Corp., Richmond, Va.

## SUPERPHOSPHATE

American Agricultural Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
Davison Chemical Corporation, Baltimore, Md.  
International Minerals & Chemical Corporation, Chicago, Ill.  
Jackle, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
Planters Fertilizer & Phosphate Co., Charleston, S. C.  
Southern States Phosphate Fertilizer Co., Savannah, Ga.  
U.S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.  
Virginia-Carolina Chemical Corp., Richmond, Va.

## SUPERPHOSPHATE—Concentrated

Armour Fertilizer Works, Atlanta, Ga.  
International Minerals & Chemical Corporation, Chicago, Ill.  
U.S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.  
Virginia-Carolina Chemical Corp., Richmond, Va.

## TANKAGE

American Agricultural Chemical Co., New York City  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
International Minerals & Chemical Corporation, Chicago, Ill.  
Jackle, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

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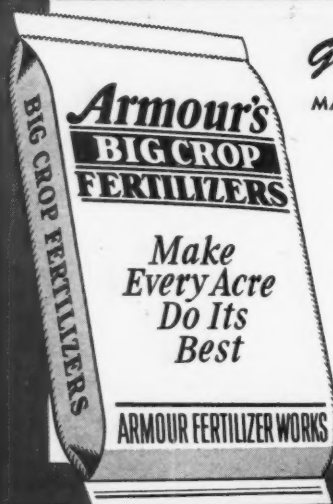
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